



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY. APRIL 8, 1868.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on a payment of six Rupees per annum if delivered in Calcutta, or twelve Rupees if sent by Post.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 22nd to 31st March 1868.

| Month. | Date. | Reduced Reading of Barometer at 10 A. M. | THERMOMETER. | | Daily Range of the Temperature. | Mean Temperature for the day. | Mean Wet Bulb. | Computed Mean Dew-point. | Mean Degree of Humidity for the day. | Prevailing Direction of Wind during the day. | Rain. | Measure of Wind. | | GENERAL REMARKS. |
|--------|-------|--|------------------|-----------------|---------------------------------|-------------------------------|----------------|--------------------------|--------------------------------------|--|---------|-------------------------|-------------------------|----------------------------|
| | | | Highest Reading. | Lowest Reading. | | | | | | | | Max : Pressure of Wind. | Daily Velocity of Wind. | |
| | | Inches. | ° | ° | ° | ° | ° | ° | | | Inches. | in | Miles. | |
| March | 22nd | 29.295 | 95.3 | 74.6 | 20.7 | 83.3 | 74.7 | 68.0 | 0.61 | S by W & W | ... | 0.4 | 117.2 | Chiefly clear. |
| | 23rd | 29.0 | 95.5 | 74.4 | 21.1 | 84.2 | 72.0 | 65.0 | 54 | W by N & Variable | ... | 0.2 | 97.0 | Clear and scattered cirri. |
| | 24th | 29.4 | 94.6 | 75.5 | 19.0 | 84.3 | 73.6 | 65.9 | 60 | S by W & Variable | ... | 0.1 | 100.8 | Chiefly clear. |
| | 25th | 29.51 | 94.0 | 76.0 | 18.9 | 84.5 | 74.9 | 68.2 | 60 | S by W | ... | ... | 78.0 | Clear and scattered cirri. |
| | 26th | 29.88 | 95.0 | 76.0 | 19.0 | 85.2 | 76.7 | 72.1 | 70 | SS W & S by E | ... | ... | 126.7 | Clear and scattered cirri. |
| | 27th | 29.88 | 92.0 | 77.0 | 15.0 | 83.0 | 73.0 | 65.0 | 58 | S by W & N N W | ... | 3.3 | 164.9 | Stratoni. |
| | 28th | 29.57 | 95.7 | 74.8 | 20.9 | 84.0 | 70.8 | 61.6 | 49 | SS W | ... | 0.3 | 140.0 | Scattered cirri and clear. |
| | 29th | 29.86 | 96.7 | 75.0 | 21.7 | 84.7 | 76.2 | 70.3 | 83 | W & S by W | ... | 1.0 | 149.4 | Clear and scattered cirri. |
| | 30th | 29.08 | 91.5 | 77.3 | 14.2 | 83.4 | 77.5 | 73.4 | 73 | SS W & S by W | ... | 0.4 | 170.0 | Clear and Stratoni. |
| | 31st | 29.02 | 94.5 | 76.5 | 18.0 | 84.9 | 73.3 | 68.5 | 50 | SS W & N W | ... | 0.7 | 162.5 | Cirri and alto-cumuli. |

The mean Temperature and the mean Wet Bulb are derived from the twenty-four hourly Observations made during the day.

The Dew-point is computed with the Greenwich constants. The figures in column ten represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1 foot 2 inches, and that of the Anemometer 70 feet 10 inches, above the level of the ground. The velocity of wind, as indicated by Robinson's Anemometer, is registered from noon to noon.

| | | | |
|---|-----|-----|------|
| The extreme variation of Temperature during the past ten days | ... | ... | 22.3 |
| The Max. Temperature during the past ten days | ... | ... | 96.7 |
| The Max. Temperature during the corresponding period of the past year | ... | ... | 92.0 |
| The mean humidity during the past ten days | ... | ... | 0.60 |
| The mean humidity during the corresponding period of the past year | ... | ... | 0.67 |
| Inches. | | | |
| The total fall of rain from 22nd to 31st.. { by lower rain gauge | | | |
| { by Anemometer gauge | | | |
| Ditto ditto from 22nd to 31st, average of fourteen previous years | ... | ... | 0.40 |
| Ditto ditto between the 1st January and the 31st ultimo | ... | ... | 0.39 |
| Ditto ditto during the corresponding period of the past year | ... | ... | 2.94 |

GOVERNMENT SEN,

In charge of the Observatory.

The 3rd April 1868.



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, APRIL 15, 1868.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on a payment of six Rupees per annum if delivered in Calcutta, or twelve Rupees if sent by Post.

Report on the Cultivation of Cinchona at Darjeeling during the month of January 1868.

From T. ANDERSON, Esq., M. D., Superintendent, Botanical Gardens, and in charge of Cinchona Cultivation in Bengal, to the Junior Secretary to the Government of Bengal,—(No. 136, dated Botanical Gardens, the 30th March 1868.)

I HAVE the honor to forward the Report on the cultivation of Cinchona at Darjeeling during the month of January 1868.

Report on the cultivation of Cinchona at Darjeeling during the month of January 1868.

THE progress made during the month has consisted principally of the preparation of land for the extension of the open air plantations, the cleaning and repairing of roads and bridges, and the making of new roads and bridges to give access to the land being cleaned for the new plantations, and the formation of new nursery beds. 1,400 plants of *C. Succirubra*, 2,000 of *C. Officinalis*, and 70 plants of *C. Calisaya* were added to the open air plantations; 28,230 plants were placed in the open air nurseries; 24,500 cuttings were made during the month, and 1,000 seedlings of *C. Officinalis* were transferred to nursery beds. The total number of plants and cuttings in all stages of growth was 14,76,373 on the 1st January. 1,000 plants of *C. Succirubra* were sent to Chittagong.

I have made two alterations in the table of monthly growth, 1st by substituting a certain number of plants in the plantations on the Rishap spur for those at the third plantation on the Runghee spur, and, 2nd, by entirely excluding *C. Pahudiana* from the table substituting *C. Calisaya*.

The Meteorological observations have been discontinued at the third and fifth plantations, and the instruments have been transferred to the Rishap plantation. The weather during the month was characterized by no changes except towards the end of the month, when two showers of rain occurred, but the amount of rain was trifling, only 0.95 of an inch having been recorded.

Table showing the temperature of the month at the different plantations.

| PLANTATIONS. | Mean Maximum. | Mean Minimum. | Mean Temperature. | REMARKS. |
|--------------------|---------------|---------------|-------------------|----------|
| 2nd Plantation ... | 49.8 | 40.1 | 44.9 | |
| 4th Ditto ... | 57.5 | 43.8 | 50.6 | |
| Rishap Ditto ... | 67.9 | 39.8 | 53.8 | |

Table showing the maximum and minimum growth during the month of January 1867.

| NAMES OF SPECIES. | TREETA. | | RISHAP. | RUMBEE. | |
|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| | First Plantation. | Second Plantation. | Third Plantation. | Fourth Plantation. | Fifth Plantation. |
| C. Succirubra .. | 1 to 2 1/4 inches | 1 to 1 1/4 inches. | 1 inch ... | 1 to 2 inches.. | 1 to 1 inch .. |
| C. Micrantha .. | 1 to 1 1/4 " ... | 1 1/4 " ... | 1 to 2 1/4 inches. | 2 " .. | 1 1/4 to 3 inches. |
| C. Officinalis .. | Not measured. | Not measured. | Not measured. | 1 to 1 1/4 " ... | Not measured. |
| Ditto .. | Ditto .. | Ditto .. | 1 to 3 1/4 inches. | None .. | None. |

and distribution of Cinchona Plants in the Government Plantations at Darjeeling on the 1st February 1868.

| NAMES OF SPECIES OF CINCHONA. | Number in permanent Plantations. | Number of stock plants for propagation. | Number of seedlings or rooted cuttings in nursery beds for permanent Plantations. | Number of rooted plants in cutting beds. | Number of cuttings made during the month. | Total number of plants, cuttings, and seedlings. |
|---------------------------------|----------------------------------|---|---|--|---|--|
| C. Succirubra | 2,57,543 | 20,000 | 2,08,625 | 2,09,239 | 12,000 | 7,07,457 |
| C. Calisaya | 220 | 4,158 | None. | 5,876 | 500 | 10,754 |
| C. Micrantha | 5,558 | 1,000 | 8,220 | 15,889 | None. | 30,687 |
| C. Officinalis and varieties .. | 1,32,919 | 10,000 | 2,42,476 | *3,25,013 | 12,000 | 7,22,408 |
| C. Pabudiana | 5,092 | None. | None. | None. | None. | 5,092 |
| Total .. | 4,01,332 | 35,158 | 4,59,321 | 5,56,067 | 24,500 | 14,76,878 |

* 1,000 seedlings have been added.

J. GAMMIE,
Head Gardener in Charge.

TABLE showing the growth of Cinchona in the Dissecting Plantations during the month of January 1883.

| NAME. | 1st PLANTATION, (TERRA) ALTITUDE 2,000 FEET. | | | | | 2nd PLANTATION, (TERRA) ALTITUDE 2,000 FEET. | | | | | 3rd PLANTATION, (RIVER) ALTITUDE 2,333 FEET. | | | | | 4th PLANTATION, (RIVER) ALTITUDE 2,550 FEET. | | | | | 5th PLANTATION, (RIVER) ALTITUDE 2,550 FEET. | | | | | |
|----------------|--|------------------------|--------------------------------------|------------------------|-------------------------|--|------------------------|--------------------------------------|------------------------|-------------------------|--|------------------------|--------------------------------------|------------------------|-------------------------|--|------------------------|--------------------------------------|------------------------|-------------------------|--|------------------------|--------------------------------------|------------------------|-------------------------|------------------------|
| | Number. | Date of planting 1886. | Height in inches on 31st March 1886. | Height on 1st January. | Height on 1st February. | Growth during January. | Date of planting 1886. | Height in inches on 31st March 1886. | Height on 1st January. | Height on 1st February. | Growth during January. | Date of planting 1886. | Height in inches on 31st March 1886. | Height on 1st January. | Height on 1st February. | Growth during January. | Date of planting 1886. | Height in inches on 31st March 1886. | Height on 1st January. | Height on 1st February. | Growth during January. | Date of planting 1886. | Height in inches on 31st March 1886. | Height on 1st January. | Height on 1st February. | Growth during January. |
| C. Guianensis | 1 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 2 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 3 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 4 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 5 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 6 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 7 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 8 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 9 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 10 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| C. Microantha | 1 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 2 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 3 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 4 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 5 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 6 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 7 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 8 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 9 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 10 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| C. Officinalis | 1 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 2 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 3 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 4 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 5 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 6 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 7 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 8 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 9 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 10 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| C. Calliaya | 1 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 2 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 3 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 4 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 5 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 6 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 7 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 8 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 9 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |
| | 10 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 | 18th Nov. | 81 | 81 | 81 | 0 |

• Entries over.

T. ANDERSON, M. D.,
Superintendent of the Botanical Gardens,
and in charge of Cinchona Cultivation at Bengul.

The License Tax.

Statement of amount collected under Act XXI. of 1867 in the Lower Provinces.

| | PRESIDENCY. | | | | MOONSHIL. | | TOTAL |
|--|-------------------------------------|---------------------|-------------|------------------------------------|-----------------------------|----------------|---------------|
| | Before reported. | FOR THE WEEK ENDING | | Reported to close of January 1868. | In February and March 1868. | | |
| | | 21st March. | 28th March. | | | | |
| Collections | 4,88,082 5 5 | 2,155 | 537 0 0 | 10,78,119 | 44,636 | 15,91,408 5 5 | |
| Deduct refunds | 34,097 13 7 | 1,560 | 162 0 0 | 84,668 | 12,630 | 1,53,123 13 7 | |
| Remaining | 4,53,984 7 10 | 495 | 375 0 0 | 9,93,451 | 31,996 | 14,68,283 7 10 | |
| Deductions (at the Presidency) by the Examiner of Claims from salaries of servants under | Government of India Ditto Bengal | 27,824 14 2 | ... | ... | ... | 27,824 14 2 | |
| | | 24,776 7 0 | ... | ... | ... | 24,776 7 0 | |
| Ditto at Moonshil Treasuries | | ... | ... | 12,140 | 40 | 72,189 0 0 | |
| Ditto at other Local Offices | | ... | ... | ... | ... | 12,180 0 0 | |
| Ditto in Military Department, less refunds, Rupees 2,025-5-4 | | ... | ... | ... | ... | 10,251 10 8 | |
| Grand Total | | 4,84,606 13 0 | 495 | 375 0 0 | 10,05,596 | 31,936 | 18,14,507 7 8 |

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 1st to 7th April 1868.

| MONTH. | Date. | Reduced Reading of Barometer at 10 A. M. | THERMOMETER. | | Daily Range of the Temperature. | Mean Temperature for the day. | Mean Wet Bulb. | Computed Mean Dew-point. | Mean Degree of humidity for the day. | Prevailing Direction of Wind during the day. | Rain. | Max. Pressure of Wind. | Daily Velocity of Wind. | GENERAL REMARKS. |
|-----------|-------|--|------------------|-----------------|---------------------------------|-------------------------------|----------------|--------------------------|--------------------------------------|--|-------|------------------------|-------------------------|--|
| | | | Highest Reading. | Lowest Reading. | | | | | | | | | | |
| April ... | 1st | Inches. 30.016 | 84.8 | 78.5 | 18.3 | 84.7 | 76.5 | 69.1 | 0.61 | S S W & S | ... | 0.8 | 150.0 | Chiefly clear. |
| | 2nd | 29.983 | 85.2 | 76.8 | 18.4 | 85.3 | 75.3 | 68.3 | .58 | S S W & N | ... | 8.5 | 175.8 | Chiefly clear, slightly foggy at 9 P. M. |
| | 3rd | 30.17 | 85.4 | 78.0 | 19.4 | 85.3 | 71.8 | 62.8 | .48 | W N W | ... | 0.7 | 174.8 | Clear and scattered red cir. |
| | 4th | 30.14 | 87.5 | 78.5 | 31.0 | 85.3 | 74.0 | 60.3 | .54 | W & S | 0.30 | 18.0 | 106.4 | Clear and clouds of different kinds. High wind at 8 1/2 P. M. Lightning and thunder from 7 to 9 P. M. Rain at 8 P. M. |
| | 5th | 30.33 | 78.5 | 67.5 | 11.0 | 78.1 | 69.3 | 60.3 | .80 | SE & ENE | 0.67 | 3.0 | 162.1 | Overcast and scattered cumuli. Strong wind at 7 and 8 A. M. and from 1 to 4 P. M. Lightning at 7 A. M. Thunder at 7 A. M., 1 P. M., and 5 to 5 P. M. Rain at 7 and 10 1/2 A. M. and at 4 and 4 P. M. |
| | 6th | 30.78 | 89.8 | 67.5 | 22.3 | 77.6 | 73.1 | 60.0 | .78 | S by W & S by E | ... | 1.1 | 173.1 | Clear and scattered cumuli. |
| | 7th | 30.07 | 80.6 | 74.0 | 16.5 | 81.4 | 76.4 | 73.0 | .76 | ESE & S | ... | 1.7 | 184.6 | Scattered cumuli and stratus. |

The mean Temperature and the mean Wet Bulb are derived from the twenty-four hourly Observations made during the day.

The Dew-point is computed with the Greenwich constants. The figures in column ten represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1 foot 2 inches, and that of the Anemometer 70 feet 10 inches, above the level of the ground. The velocity of wind, as indicated by Robinson's Anemometer, is registered from noon to noon.

| | | | |
|---|---------------------|-----|---------|
| The extreme variation of Temperature during the past seven days | ... | ... | 30.0 |
| The Max. Temperature during the past seven days | ... | ... | 97.5 |
| The Max. Temperature during the corresponding period of the past year | ... | ... | 102.5 |
| The mean humidity during the past seven days | ... | ... | 0.65 |
| The mean humidity during the corresponding period of the past year | ... | ... | 0.58 |
| | | | Inches. |
| The total fall of rain from 1st to 7th | by lower rain gauge | ... | 1.17 |
| | by Anemometer gauge | ... | 0.24 |
| Ditto ditto from 1st to 7th, average of fourteen previous years | ... | ... | 0.31 |
| Ditto ditto between the 1st January and the 7th current | ... | ... | 1.56 |
| Ditto ditto during the corresponding period of the past year | ... | ... | 2.94 |

The 9th April 1868.

GOPENAATH SEN,
In charge of the Observatory.

Meteorological Report up to 31st March 1868.

| STATION. | March. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | Weather. |
|---------------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|-------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| CALCUTTA. | 22nd | 10 | 29.906 | 85 | 74 | 57 | W | ... | ... | Clear. |
| | | 16 | 29.883 | 85 | 74 | 53 | W by N | ... | ... | Ditto. |
| | 23rd | 10 | 29.920 | 89 | 73 | 43 | E N E | ... | ... | Ditto. |
| | | 16 | 29.897 | 85 | 72 | 26 | W S W | ... | ... | Scattered cirri. |
| | 24th | 10 | 29.924 | 86 | 78 | 31 | N W | ... | ... | Clear. |
| | | 16 | 29.783 | 84 | 73 | 33 | W | ... | ... | Covered with cirri. |
| | 25th | 10 | 29.951 | 86 | 75 | 57 | W S W | ... | ... | Scattered cirri. |
| | | 16 | 29.898 | 85 | 76 | 36 | S by E | ... | ... | Covered with cirri. |
| | 26th | 10 | 29.938 | 85 | 77 | 69 | S S W | ... | ... | Scattered cirri. |
| | | 16 | 29.784 | 83 | 81 | 57 | S | ... | ... | Covered with cirri and cumuli to N. N. E. |
| | 27th | 10 | 29.899 | 86 | 75 | 57 | N N E | ... | ... | Stratoni. |
| | | 16 | 29.820 | 80 | 70 | 39 | N W | ... | ... | Ditto. |
| | 28th | 10 | 29.937 | 88 | 72 | 43 | W S W | ... | ... | Scattered cirri and cirrostrati. |
| | | 16 | 29.785 | 86 | 71 | 24 | W by N | ... | ... | Scattered cirri. |
| | 29th | 10 | 29.936 | 87 | 70 | 68 | W | ... | ... | Clear. |
| | | 16 | 29.793 | 87 | 73 | 27 | W | ... | ... | Scattered cirri and cumuli. |
| | 30th | 10 | 29.898 | 85 | 78 | 71 | S W | ... | ... | Stratoni. |
| | | 16 | 29.733 | 80 | 80 | 63 | S by W | ... | ... | Covered with stratoni & sultry. |
| | 31st | 10 | 29.892 | 84 | 70 | 41 | N W | ... | ... | Scattered cirri. |
| | | 16 | 29.851 | 85 | 72 | 33 | W | ... | ... | Scattered cirrostrati. |
| SAGOR ISLAND. | 22nd | 9-30 | 29.986 | 80 | 80 | 100 | N W | Light | ... | Scattered clouds. |
| | | 16 | 29.807 | 85 | 81 | 79 | S W | Light | ... | Ditto. |
| | 23rd | 9-30 | 29.827 | 84 | 79 | 79 | W | Light | ... | A few scattered clouds. |
| | | 16 | 29.763 | 88 | 81 | 72 | S W | Light | ... | A few clouds towards N. horizon. |
| | 24th | 9-30 | 29.854 | 85 | 80 | 79 | N W | Light | ... | Cloudless. |
| | | 16 | 29.741 | 88 | 81 | 79 | S W | Light | ... | A few scattered clouds. |
| | 25th | 9-30 | 29.892 | 85 | 79 | 75 | N W | Light | ... | Clear. |
| | | 16 | 29.790 | 86 | 80 | 76 | S W | Light | ... | Scattered clouds. |
| | 26th | 9-30 | 29.837 | 83 | 80 | 87 | W | Light | ... | Cloudy. |
| | | 16 | 29.780 | 84 | 81 | 87 | S | Light | ... | Sky overcast with clouds. |
| | 27th | 9-30 | 29.835 | 84 | 81 | 87 | N | Light | ... | Ditto ditto. |
| | | 16 | 29.734 | 81 | 79 | 58 | N | Light | ... | Ditto ditto. |
| | 28th | 9-30 | 29.849 | 87 | 83 | 79 | N W | Light | ... | Light scattered clouds. |
| | | 16 | 29.847 | 89 | 79 | 63 | S W | Light | ... | A few scattered clouds. |
| | 29th | 9-30 | 29.873 | 84 | 80 | 83 | S W | Moderate | ... | Scattered clouds. |
| | | 16 | 29.709 | 85 | 81 | 88 | S | ... | ... | Moderate clouds. |
| | 30th | 9-30 | 29.894 | 84 | 81 | 87 | N W | Moderate | ... | Scattered clouds. |
| | | 16 | 29.761 | 84 | 81 | 37 | S | Moderate | ... | Sky overcast with clouds. |
| | 31st | 9-30 | 29.835 | 84 | 75 | 64 | N | Light | ... | Scattered clouds; few drops of rain fell last night. |
| | | 16 | 29.844 | 87 | 80 | 73 | S W | Moderate | ... | Scattered clouds. |
| CHITTAGONG. | 22nd | 9-30 | 29.874 | 80 | 73 | 70 | N W by N | Light | ... | Cirri to strati. |
| | | 16 | 29.762 | 86 | 74 | 57 | S W by W | Light | ... | Cloudy towards N. E. E. & S. |
| | 23rd | 9-30 | 29.825 | 80 | 73 | 70 | S | Light | ... | Hazy. |
| | | 16 | 29.798 | 84 | 77 | 71 | S W by W | Light | ... | Ditto. |
| | 24th | 9-30 | 29.819 | 83 | 76 | 82 | W by S | Light | ... | Ditto. |
| | | 16 | 29.712 | 84 | 79 | 70 | S | Light | ... | Cirrostrati. |
| | 25th | 9-30 | 29.849 | 89 | 76 | 82 | S S E | Light | ... | Cumuli, unsteady wind. |
| | | 16 | 29.763 | 84 | 79 | 79 | W S W | Light | ... | Cumulostrati. |
| | 26th | 9-30 | 29.845 | 81 | 73 | 66 | W S W | Light | ... | Cloudy. |
| | | 16 | 29.747 | 84 | 79 | 79 | S S W | Light | ... | Thin clouds, unsteady wind. |
| | 27th | 9-30 | 29.810 | 81 | 77 | 63 | S | Light | ... | Cumuli. |
| | | 16 | 29.719 | 84 | 79 | 79 | W S W | Light | ... | Unsteady wind, thin clouds, misty horizon. |
| | 28th | 9-30 | 29.855 | 83 | 78 | 78 | S W | Light | ... | Covered with cumuli. |
| | | 16 | 29.784 | 85 | 79 | 75 | S W | Light | ... | Hazy, cloudy horizon. |
| | 29th | 9-30 | 29.855 | 83 | 77 | 75 | S by E | Light | ... | Cloudy horizon. |
| | | 16 | 29.723 | 85 | 79 | 75 | S S W | Light | ... | Cloudy, unsteady wind. |
| | 30th | 9-30 | 29.804 | 81 | 77 | 83 | S E | Light | ... | Cloudy horizon. |
| | | 16 | 29.753 | 84 | 79 | 70 | S W | Moderate | ... | Stratoni, cumulostrati towards W. and S. W. |
| | 31st | 9-30 | 29.850 | 81 | 75 | 73 | S S W | Light | ... | Overcast since last night. |
| | | 16 | 29.767 | 84 | 70 | 70 | S | Moderate | ... | Cumulostrati, a few drops of rain at 14 hours. |
| ARUNACHAL. | 22nd | 9-30 | 29.945 | 79 | 73 | 69 | W | Light | ... | Cirri. |
| | | 16 | 29.846 | 86 | 76 | 61 | W S W | Light | ... | Ditto. |
| | 23rd | 9-30 | 29.806 | 81 | 75 | 74 | N E | Light | ... | |
| | | 16 | 29.801 | 88 | 78 | 62 | W | Moderate | ... | |
| | 24th | 9-30 | 29.909 | 81 | 76 | 78 | N E | Light | ... | |
| | | 16 | 29.816 | 86 | 73 | 66 | W | Light | ... | |
| | 25th | 9-30 | 29.927 | 82 | 73 | 59 | E | Light | ... | Fine. |
| | | 16 | 29.829 | 85 | 80 | 79 | W | Moderate | ... | |
| | 26th | 9-30 | 29.922 | 80 | 74 | 74 | N | Light | ... | |
| | | 16 | 29.826 | 88 | 75 | 68 | W S W | Moderate | ... | |
| | 27th | 9-30 | 29.912 | 80 | 75 | 78 | W | Light | ... | |
| | | 16 | 29.820 | 85 | 80 | 79 | W | Light | ... | |
| | 28th | 9-30 | 29.924 | 83 | 78 | 78 | S W | Light | ... | Cirrostrati. |
| | | 16 | 29.812 | 84 | 76 | 79 | W | Light | ... | Fine. |
| | 29th | 9-30 | 29.957 | 82 | 76 | 83 | N W | Light | ... | Scattered cirrocumuli. |
| | | 16 | 29.839 | 85 | 79 | 75 | W S W | Light | ... | Scattered cirri. |
| | 30th | 9-30 | 29.917 | 82 | 78 | 73 | S W | Light | ... | Scattered cirri. |
| | | 16 | 29.839 | 85 | 79 | 76 | W | Light | ... | Fine. |
| | 31st | 9-30 | 29.907 | 83 | 79 | 87 | N E | Light | ... | Cirrostrati. |
| | | 16 | 29.889 | 85 | 78 | 71 | S W | Light | ... | Fine. |

| STATION. | Month. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | WEATHER. |
|----------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------------|---------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| CUTTACK. | | | Inches. | ° | ° | | | | Inches. | |
| | 22nd | 9-30 | 29.049 | 83 | 70 | 71 | W by N | Light | ... | Foggy until 6-30 hours, hazy, clear sky. |
| | | 10 | 29.081 | 91 | 73 | 80 | S by W | Light | ... | Cirri, cirrostrati, cirrocumuli and mity. |
| | 23rd | 9-30 | 29.069 | 85 | 71 | 47 | W by N | Light | ... | Misty, clear sky. |
| | | 16 | 29.090 | 92 | 78 | 49 | S by E | Light | ... | Sultry and misty. |
| | 24th | 9-30 | 29.058 | 86 | 73 | 60 | W by S | Light | ... | Misty. |
| | | 16 | 29.028 | 93 | 70 | 27 | W by S | Light | ... | Cirri, cirrostrati, cirrocumuli and threatening appearance to N. E. |
| | 25th | 9-30 | 29.078 | 85 | 73 | 80 | E | Light | ... | Cirri and hazy. |
| | | 16 | 29.092 | 90 | 74 | 44 | S by E | Moderate | ... | Thin cirri to S. E. and misty. |
| | 26th | 9-30 | 29.075 | 86 | 77 | 64 | S | Light | ... | Covered with cirri and hazy. |
| | | 16 | 29.054 | 90 | 73 | 33 | S by E | Light | ... | Ditto ditto and misty horizon, yesterday wind. |
| | 27th | 9-30 | 29.091 | 84 | 71 | 50 | W | Light | ... | Covered with cirri and misty. |
| | | 16 | 29.071 | 90 | 73 | 38 | W by N | Light | ... | Ditto ditto, misty and over-cast. |
| | 28th | 9-30 | 29.094 | 86 | 71 | 64 | W | Light | ... | Scattered cirri and misty. |
| | | 16 | 29.040 | 93 | 68 | 23 | W | Light | ... | Ditto ditto, cirrocumuli, sultry and misty. |
| | 29th | 9-30 | 29.073 | 85 | 77 | 68 | S by E | Light | ... | Very foggy until 7 hours, scattered cirri and hazy. |
| | | 16 | 29.040 | 91 | 78 | 47 | S E by S | Moderate | ... | Cirri, sultry and misty. |
| | 30th | 9-30 | 29.035 | 88 | 78 | 64 | S by W | Light | ... | Cirri and hazy. |
| | | 16 | 29.066 | 89 | 77 | 53 | S | Light | ... | Covered with cirri, strati, cumuli and overcast. |
| | 31st | 9-30 | 30.033 | 83 | 70 | 49 | S W | Light | ... | Cirri and hazy. |
| | | 16 | 29.013 | 87 | 73 | 48 | S W | Light | ... | Scattered cirri and misty horizon. |
| MADRAS. | 22nd | 10 | 29.016 | 85 | 73 | 80 | E | 7 ² | ... | Passing clouds. |
| | | 16 | 29.003 | 90 | 75 | 60 | N E | 9 ² | ... | Clear. |
| | 23rd | 10 | 29.005 | 80 | 75 | 57 | N E | 5 ² | ... | Light clouds. |
| | | 16 | 29.064 | 85 | 75 | 60 | N E | 12 ² | ... | Clear. |
| | 24th | 10 | 29.071 | 88 | 75 | 57 | S by W | 5 ² | ... | Ditto. |
| | | 16 | 29.048 | 84 | 75 | 84 | E S E | 12 ² | ... | Ditto. |
| | 25th | 10 | 29.053 | 85 | 75 | 60 | S by E | 7 ² | ... | Ditto. |
| | | 16 | 29.066 | 84 | 75 | 64 | E S E | 11 ² | ... | Ditto. |
| | 26th | 10 | 29.075 | 85 | 78 | 54 | S S E | 10 ² | ... | Fine. |
| | | 16 | 29.051 | 86 | 76 | 51 | S E | 11 ² | ... | Hazy. |
| | 27th | 10 | 29.002 | 88 | 71 | 40 | E | 6 ² | ... | Passing clouds. |
| | | 16 | 29.003 | 85 | 77 | 68 | E S E | 13 ² | ... | Nearly cloudy. |
| | 28th | 10 | 29.068 | 89 | 76 | 52 | S S W | 9 ² | ... | Fine with light clouds. |
| | | 16 | 29.054 | 86 | 75 | 57 | S E | 15 ² | ... | Nearly cloudy. |
| | 29th | 10 | 29.071 | 85 | 73 | 60 | S W by W | 7 ² | ... | Thick haze. |
| | | 16 | 29.063 | 85 | 77 | 68 | S E | 13 ² | ... | Ditto ditto. |
| | 30th | 10 | 29.072 | 85 | 74 | 57 | S E by S | 9 ² | ... | Fine with light clouds. |
| | | 16 | 29.058 | 84 | 74 | 60 | S E | 14 ² | ... | Clear. |
| | 31st | 10 | 29.031 | 86 | 75 | 57 | S by E | 5 ² | ... | Passing clouds. |
| | | 16 | 29.034 | 85 | 76 | 64 | E by S | 13 ² | ... | Clear. |
| BOMBAY. | 22nd | 10 | 29.000 | ... | ... | ... | S W | Light | ... | Cirri, strati. |
| | | 16 | 29.007 | ... | ... | ... | W | ... | ... | ... |
| | 23rd | 10 | 29.731 | ... | ... | ... | W | Moderate. | ... | ... |
| | | 16 | 29.004 | ... | ... | ... | W | ... | ... | ... |
| | 24th | 10 | 29.722 | ... | ... | ... | W | Moderate. | ... | ... |
| | | 16 | 29.004 | ... | ... | ... | W | ... | ... | ... |
| | 25th | 10 | 29.703 | ... | ... | ... | W | Moderate. | ... | ... |
| | | 16 | 29.595 | ... | ... | ... | Calm | ... | ... | Cumuli strati, heavy dust storm from W. from 6 ¹ p. m., to 10, followed by a few drops of rain. |
| | 26th | 10 | 29.686 | ... | ... | ... | ... | ... | ... | Cumuli strati, strati. |
| | | 16 | 29.588 | ... | ... | ... | S W | ... | ... | Ditto ditto. |
| | 27th | 10 | 29.709 | ... | ... | ... | N W | ... | ... | Ditto. |
| | | 16 | 29.583 | ... | ... | ... | W | Light | ... | Cirri, strati. |
| | 28th | 10 | 29.075 | ... | ... | ... | W | ... | ... | Strati. |
| | | 16 | 29.078 | ... | ... | ... | W | Light | ... | Ditto, cirrostrati. |
| | 29th | 10 | 29.082 | ... | ... | ... | W | ... | ... | Cumuli, strati. |
| | | 16 | 29.007 | ... | ... | ... | E | ... | ... | Strati, cirri cirrostrati. |
| | 30th | 10 | 29.083 | ... | ... | ... | W | Light | ... | Cirri, strati. |
| | | 16 | 29.061 | ... | ... | ... | W | ... | ... | Cirri. |
| | 31st | 10 | 29.755 | ... | ... | ... | Calm | ... | 0.15 | ... |
| | | 16 | 29.023 | ... | ... | ... | ... | ... | ... | Cirri. |
| ROOPEE. | 22nd | 9-30 | 29.174 | 79 | 64 | 40 | N E | ... | ... | Clear at 10 hours. |
| | | 16 | 29.100 | 84 | 64 | 28 | N W | ... | ... | Cirri at 16 hours. |
| | 23rd | 9-30 | 29.088 | 76 | 63 | 44 | N W | ... | ... | Clear at 10 hours. |
| | | 16 | 29.008 | 80 | 61 | 17 | W | ... | ... | Cirri at 16 hours. |
| | 24th | 9-30 | 29.020 | 75 | 63 | 47 | N W | ... | ... | Sky overcast few drops of rain at 10-30. |
| | | 16 | 29.045 | 86 | 62 | 18 | Calm | ... | ... | Cirri at 10. |
| | 25th | 9-30 | 29.012 | 78 | 66 | 49 | N W | ... | ... | Sky overcast at 16 hours. |
| | | 16 | 29.038 | 89 | 65 | 21 | Calm | ... | ... | Calm clear day. |
| | 26th | 9-30 | 29.024 | 84 | 68 | 40 | Calm | ... | ... | ... |
| | | 16 | 29.029 | 80 | 69 | 32 | Calm | ... | ... | ... |
| | 27th | 9-30 | 29.030 | 80 | 69 | 51 | N W | ... | ... | N. W. breeze all day long. |
| | | 16 | 29.050 | 88 | 66 | 26 | N W | ... | ... | ... |
| | 28th | 9-30 | 29.010 | 82 | 67 | 43 | N W | ... | ... | Cloudy day. |
| | | 16 | 29.026 | 88 | 65 | 18 | N W | ... | ... | Cloudy day, lightning in the evening. |
| | 29th | 9-30 | 29.046 | 84 | 67 | 37 | Calm | ... | ... | Clouds gathering, few drops of rain at 4 h., brisk S. W. breeze at 23 h. few drops of rain. |
| | | 16 | 29.083 | 83 | 67 | 39 | S W | ... | ... | ... |
| | 30th | 9-30 | 29.001 | 87 | 66 | 27 | S E | ... | ... | ... |
| | 31st | 9-30 | 29.043 | 84 | 64 | 28 | ... | ... | ... | ... |
| | | 16 | 29.079 | 84 | 66 | 34 | S E | ... | ... | ... |

Velocity in miles per hour.

| STATION. | March. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | WEATHER. |
|-------------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|-------|---|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| DARJEELING. | 29nd | 9-30 | 23.287 | 53 | 60 | 70 | ESE | Light | ... | Misty. |
| | 16 | | 23.279 | 55 | 61 | 74 | NW | Light | ... | Cumuli, simbi. |
| | 28rd | 9-30 | 23.208 | 56 | 53 | 69 | ESE | Light | ... | Cirrocumuli. |
| | 16 | | 23.195 | 60 | 54 | 65 | WNW | Moderate | ... | Cumuli round horizon, rest clear. |
| | 24th | 9-30 | 23.258 | 50 | 48 | 88 | SE | Light | ... | Clear delightful morning. |
| | 16 | | 23.185 | 53 | 56 | 61 | NW | Light | ... | Clear. |
| | 25th | 9-30 | 23.211 | 50 | 51 | 78 | SE | Light | ... | Ditto pleasant morning. |
| | 16 | | 23.259 | 53 | 55 | 58 | W | Light | ... | Ditto. |
| | 26th | 9-30 | 23.231 | 53 | 51 | 69 | ESE | Light | ... | Ditto ditto. |
| | 16 | | 23.250 | 53 | 52 | 45 | WSW | Light | ... | Ditto. |
| Dacca. | 27th | 9-30 | 23.299 | 57 | 51 | 63 | SE | Light | ... | Scattered cirri, delightful morning. |
| | 16 | | 23.204 | 60 | 52 | 54 | SW | Moderate | ... | Cumuli round horizon, rest clear. |
| | 28th | 9-30 | 23.280 | 57 | 53 | 75 | W by S | Light | ... | Ditto ditto. Agreeable morning. |
| | 16 | | 23.293 | 52 | 55 | 66 | W | Light | ... | Clear. |
| | 29th | 9-30 | 23.231 | 61 | 64 | 71 | ESE | Light | ... | Clear. Agreeable morning. |
| | 16 | | 23.266 | 62 | 64 | 66 | WNW | Light | ... | Cumuli round horizon, rest clear. |
| | 20th | | | | | | | | | |
| | 31st | | | | | | | | | |
| | 22nd | 9-30 | 29.917 | 82 | 78 | 74 | SW | Light | ... | Clear. |
| | 16 | | 29.780 | 81 | 75 | 74 | S | Light | ... | Ditto. |
| PATA. | 23rd | 9-30 | 29.844 | 83 | 74 | 63 | WSW | Light | ... | Ditto. |
| | 19 | | 29.733 | 86 | 73 | 46 | WNW | Light | ... | Partially cloudy. |
| | 24th | 9-30 | 29.832 | 84 | 79 | 43 | SSW | Light | ... | Clear. |
| | 16 | | 29.712 | 88 | 72 | 43 | S | Light | ... | Ditto. |
| | 25th | 9-30 | 29.872 | 84 | 70 | 46 | W | Light | ... | Partially cloudy. |
| | 16 | | 29.752 | 88 | 74 | 49 | WSW | Light | ... | Ditto ditto. |
| | 26th | 9-30 | 29.854 | 83 | 79 | 63 | SSW | Light | ... | Clear. |
| | 16 | | 29.793 | 88 | 67 | 65 | SW | Light | ... | Partially cloudy. |
| | 27th | 9-30 | 29.824 | 83 | 79 | 83 | SSW | Light | ... | Ditto ditto. |
| | 16 | | 29.727 | 86 | 78 | 51 | NNW | Strong | ... | Threatening since 12-15, thunder N. E. |
| PALE POND. | 28th | 9-30 | 29.814 | 83 | 78 | 71 | SW | Light | ... | Partially cloudy. |
| | 16 | | 29.703 | 88 | 74 | 39 | WNW | Light | ... | Ditto. |
| | 29th | 9-30 | 29.802 | 84 | 79 | 70 | WSW | Light | ... | Clear. |
| | 16 | | 29.742 | 88 | 75 | 52 | W | Light | ... | Partially cloudy. |
| | 30th | 9-30 | 29.832 | 84 | 80 | 82 | S | Fresh | ... | Ditto. |
| | 16 | | 29.734 | 87 | 80 | 72 | SSW | Fresh | ... | Cloudy. |
| | 31st | 9-30 | 29.803 | 84 | 79 | 79 | S | Light | ... | Ditto. |
| | 16 | | 29.754 | 87 | 73 | 48 | W | Moderate | ... | Partially cloudy, few drops of rain at 12-25. |
| | 20th | 9-30 | 29.700 | 87 | 64 | 92 | W | ... | ... | Fine day. |
| | 21st | 9-30 | 29.803 | 91 | 68 | 25 | NNW | ... | ... | Ditto strong westerly wind. |
| PALE POND. | 22nd | 9-30 | 29.716 | 90 | 64 | 17 | W | ... | ... | Ditto strong westerly wind. |
| | 16 | | 29.607 | 94 | 71 | 28 | WNW | ... | ... | Boisterous day after 10 a. m. |
| | 23rd | 9-30 | 29.787 | 87 | 68 | 33 | NNW | ... | ... | Ditto ditto. |
| | 16 | | 29.610 | 93 | 66 | 21 | NW | ... | ... | Ditto ditto. |
| | 24th | 9-30 | 29.705 | 89 | 63 | 18 | WNW | ... | ... | Calm and warmer. |
| | 16 | | 29.548 | 93 | 64 | 30 | W | ... | ... | Ditto ditto. |
| | 25th | 9-30 | 29.705 | 89 | 63 | 18 | WNW | ... | ... | Ditto ditto. |
| | 16 | | 29.548 | 93 | 64 | 18 | W | ... | ... | Ditto ditto. |
| | 26th | 9-30 | 29.699 | 88 | 68 | 18 | NW | ... | ... | Ditto and cloudy. |
| | 16 | | 29.563 | 94 | 64 | 10 | W | ... | ... | Cloudy in afternoon. |
| PALE POND. | 27th | 9-30 | 29.550 | 73 | 61 | 46 | NW | ... | ... | Again clear. |
| | 16 | | 29.707 | 92 | 66 | 18 | W | ... | ... | Cloudy in evening. |
| | 28th | 9-30 | 29.707 | 92 | 66 | 18 | SW | ... | ... | Lightning in south in evening with a few heavy drops of rain. |
| | 16 | | 29.553 | 89 | 64 | 19 | W | ... | ... | Somewhat hazy. |
| | 29th | 9-30 | 29.700 | 96 | 61 | 9 | NW | ... | ... | Strong breezes and fine. |
| | 16 | | 29.530 | 94 | 64 | 10 | W | ... | ... | Ditto weather. |
| | 30th | 9-30 | 29.709 | 97 | 60 | 5 | NW | ... | ... | Moderate breezes and fine. |
| | 16 | | 29.535 | 96 | 63 | ... | NE by E | ... | ... | Strong breezes and fine. |
| | 31st | 9-30 | 29.600 | 90 | 68 | ... | W | ... | ... | Light weather and fine. |
| | 16 | | 29.542 | 93 | 64 | ... | NW | ... | ... | Ditto winds and fine. |
| PALE POND. | 22nd | 9-30 | 29.749 | 88 | 61 | ... | NW | ... | ... | Ditto weather and fine. |
| | 16 | | 29.641 | 93 | 66 | ... | SW | ... | ... | Light weather. |
| | 23rd | 9-30 | 29.862 | 84 | 73 | 89 | SW | ... | ... | Ditto winds and fine. |
| | 16 | | 29.716 | 89 | 57 | 78 | SW | ... | ... | Ditto weather and fine. |
| | 24th | 9-30 | 29.802 | 80 | 79 | 83 | SW | ... | ... | Fresh breeze and fine. |
| | 16 | | 29.614 | 83 | 79 | 84 | SSW | ... | ... | Ditto ditto. |
| | 25th | 9-30 | 29.854 | 79 | 77 | 82 | SE | ... | ... | Strong ditto. |
| | 16 | | 29.830 | 81 | 77 | 82 | SE | ... | ... | Light weather and partially cloudy. |
| | 26th | 9-30 | 29.905 | 70 | 70 | 81 | NE | ... | ... | Ditto winds and fine. |
| | 16 | | 29.803 | 80 | 75 | 82 | Variable | ... | ... | Ditto weather and fine. |
| PALE POND. | 27th | 9-30 | 29.864 | 79 | 75 | 82 | SE | ... | ... | Strong breezes and fine. |
| | 16 | | 29.783 | 80 | 76 | 78 | SW | ... | ... | Ditto ditto. |
| | 28th | 9-30 | 29.903 | 80 | 77 | 82 | SW | ... | ... | Strong ditto. |
| | 16 | | 29.600 | 81 | 77 | 86 | SW | ... | ... | Light weather and partially cloudy. |
| | 29th | 9-30 | 29.912 | 80 | 77 | 86 | SW | ... | ... | Ditto winds and fine. |
| | 16 | | 29.800 | 81 | 78 | 86 | SW | ... | ... | Moderate breezes and fine. |
| | 30th | 9-30 | 29.929 | 81 | 78 | 86 | WNW | ... | ... | Ditto weather and fine. |
| | 16 | | 29.817 | 82 | 79 | 87 | S | ... | ... | Ditto breezes. |
| | 21st | 9-30 | 29.880 | 81 | 78 | 88 | S | ... | ... | Strong breezes and fine; a dry N. W. squall with thunder and lightning at 17 hours. |
| | 16 | | 29.755 | 83 | 79 | 87 | SW | ... | ... | Moderate breezes. |
| PALE POND. | 22nd | 9-30 | 29.837 | 82 | 79 | 87 | SW | ... | ... | Ditto weather. |
| | 16 | | 29.785 | 83 | 78 | 78 | SW | ... | ... | Strong breezes and fine. |
| | 23rd | 9-30 | 29.877 | 82 | 78 | 83 | SW | ... | ... | Ditto weather. |
| | 16 | | 29.776 | 83 | 79 | 87 | SW | ... | ... | Strong breezes and fine. |
| | 24th | 9-30 | 29.877 | 82 | 79 | 87 | SW | ... | ... | Ditto weather and fine. |
| | 16 | | 29.762 | 84 | 80 | 83 | SW | ... | ... | Moderate breezes and fine. |
| | 25th | 9-30 | 29.855 | 83 | 78 | 78 | SW | ... | ... | Ditto weather. |
| | 16 | | 29.762 | 84 | 81 | 87 | SW | ... | ... | Light weather and fine. |
| | 26th | 9-30 | 29.875 | 83 | 79 | 83 | WNW | ... | ... | Moderate breezes. |
| | 16 | | 29.768 | 84 | 80 | 83 | SSW | ... | ... | |

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SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, APRIL 22, 1868.

OFFICIAL PAPERS.

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Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday April 4th, 1868.

Present:

HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, Presiding.

T. H. COWIE, Esq., Advocate-General.

H. L. DAMPIER, Esq.,

E. T. TREYOR, Esq.,

A. R. THOMPSON, Esq.,

KOOMAR HURENDRA KRISHNA, RAI BAHADUR.

BABOO RAMANATH TAGORE.

H. KNOWLES, Esq.,

BABOO PEARY CHAND MITTRA.

T. ALCOCK, Esq.,

H. H. SUTHERLAND, Esq.,

KOOMAR SATIANUND GHOSAL.

RECOVERY OF ARREARS OF REVENUE.

THE ADVOCATE GENERAL moved that the Bill "to make further provision for the recovery of arrears of land revenue and public demands recoverable as arrears of land revenue," be read in Council. He said, he proposed simply to go through the principal Sections of the Bill, explaining, as briefly as he could, the object in introducing the measure in the present form, and not repeating what he had the honor of laying before the Council when he had obtained leave to bring in the Bill. It would be remembered that he had pointed out the Act XI of 1859, the amendment and explanation of which was the principal object of this Bill, was defective in several respects, and that it did not give a definition of some terms which stood practically in need of definition. In the definitions which he had given in the Interpretation Clause of the Bill, he had endeavoured to meet two principal objects, first, by such a specification of the meaning of certain terms as should remove uncertainty as to the construction of Act XI of 1859,; and secondly, by extending the effect of the provisions of that Act, and by doing away with the distinction, which certainly had been supposed to exist, though, according to his notions of the law, it never really could have existed, between what

was ordinarily understood as revenue payable to Government, and what was understood as rent in the case of lands held directly from Government. With reference to the second object, the abolition of the distinction between revenue and rent, it was provided that the term "proprietor" should include any farmer or tenant by whom any land was held directly under Government, or by whom any demand was payable to Government. Then, the definition of the word "revenue" had reference to the peculiar form of Act XI of 1859, which, not containing any definition of terms, did in an indirect and inferential way deal with certain public demands, such as *tuccaves*, and money advanced for the making and repairing of embankments, reservoirs, or water courses, and gave the same absolute power of sale, and title under that sale, in respect of such demands, as in the case of estates sold for arrears of revenue proper. That was why the term "revenue" was extended to those demands, instead of including them with other demands which formed the principal subject of the later Sections. It appeared doubtful, under the present law, as to whether or not shares of estates could be sold for arrears of revenue due on them. To make it quite clear that that power was intended to be given by the Act, the term "estate" was so defined as to place persons who desired that they should be separately assessed,

in the position of proprietors. Then the substance of the definition of the term "tenure" was, that it should include any interest in land, lakhiraj or not, which was transferable; and the definition of the word "demand" was taken from various Regulations and Acts under which, according to the existing law, certain amounts payable to Government were recoverable as Government revenue. The Council would understand that the specification of the particular instances of demands which, under this Bill and Act XI of 1859, would be so recoverable, did not introduce the slightest alteration in substance: they only applied the necessary process for the recovery of those demands. Then there were definitions of the terms "Collectorate" and "Collector," which would possibly require correction.

The 3rd Section of the Bill, which would also require correction, was one which, if he might use the term, was put forward tentatively. Its object was to give the Commissioner of the Division a certain discretionary power of interference without there being any recourse to the process of appeal. Opinions might differ as to whether interference should be exercised otherwise than by the regular process of appeal. He (the Advocate General) had therefore merely introduced the Section as a provision for further consideration in Committee, and when the Bill came up before the Council for final consideration.

With the view of extending, and making more precise and inflexible, the operation of the sale law, and at the same time to do away with anything having the appearance of undue harshness or stringency, it was proposed in the 4th Section to extend the time now allowed for application to the Collector and Commissioner after notice of sale should have been issued; and with the same object, the 5th Section went on to provide what he (the Advocate General) thought was in every sense desirable, if not necessary, for service of personal notice where it could be personally served. Under the existing state of the law as regards estates and tenures saleable under Act XI of 1859, there was only an indirect notice given to the proprietor. Notice was given to the ryots on the estate or tenure that they were not to pay to the existing proprietor after a certain date. It was not proposed to omit that provision, but that, in addition, there should be a personal notice to the person interested in the sale of the tenure. That was provided for in the 5th and 6th Sections of the Bill. And then, having, so far as we could, made every provision and safeguard against improper or unnecessary or unjust sales, the 7th Section did what it was equally necessary to do, namely, to give effect to any proceeding taken after issue of those notices, inasmuch as it might be considered to have produced that result which had contributed not a little to the increased prosperity of the people and the security of title, namely, the finality of title which a purchaser, under a sale once effected, was to acquire. Such security of title was obtained by providing that a certificate of title given to any purchaser was to be taken as conclusive evidence of the issue of all the notices required, and that the purchaser's title was not to be affected by reason of any omission, informality, or irregularity in the proceedings under which the sale was had. In substance and in principle that Section had been taken from the similar provision in the Encumbered Estates Act

in Ireland, which had been found to work admirably well.

The 8th Section of the Bill was merely to do away with any doubt which might reasonably have existed, whether, under Act XI of 1859, lakhiraj tenures were or were not saleable for arrears of revenue. It simply provided that all sales of lakhiraj lands heretofore made should be as valid and effectual as if they were made in execution of decrees.

In carrying out the object which the Legislature had in enabling the proprietors of estates or of certain tenures to protect themselves from the effects of a sale of the superior estate, he had by the 9th Section extended it to the proprietors of tenures and to the proprietors of farms held for terms of years.

Section 10 had been introduced to obviate any difficulty as to the person by whom an estate or any subordinate tenure was to be sold. It provided that, where an estate was sold, it was to be considered as in the Collectorate of the Collector upon whose register it was borne; and where a tenure was sold, it might be sold quite independently of the revenue authority in whose collectorate the estate of which it formed a part might be.

The 11th Section—and that was the only Section which could be considered as introducing any alteration in substance—gave absolute power of sale in all cases of revenue payable to Government in respect of any tenure not being an estate. The Council would remember that, under the definition the term "revenue" included also rent payable to Government. The Section provided that after the sale of a tenure a certificate should issue, and it was afterwards provided that its effect should be the same as a certificate in respect of an estate proper.

Sections 12 to 14 enacted just the same provisions with regard to sales of tenures paying revenue or rent as, under Act XI of 1859, was provided with regard to estates proper paying revenue. It made the effect of the sale of the tenure by the Collector in all respects the same as the sale of an estate under Act XI of 1859 for arrears of revenue proper.

In the 15th Section, both with regard to estates and tenures, it was provided that, after an estate had been sold, if there should be a deficiency, the Collector was to issue a certificate to that effect.

The 16th Section would probably be found, on consideration, to be unnecessary; he would not, therefore, trouble the Council with an explanation of its provisions.

The 17th Section provided in the same way with regard to demands other than revenue or rent, that a certificate should issue; and then the 18th and 19th Sections provided the effect of such certificate. After notice had been served on the person interested, who, under the 19th Section was to stand in the position of the defendant, the Collector being the plaintiff, the certificate would have the effect of a decree of Court under a prohibitory order issued, and an attachment executed, against the property of the defendant. Before proceeding to apply the provisions of Act VIII of 1859, which had been found to work so well, it was thought desirable to re-enact those provisions which had reference to the claims of third parties. Under Act VII of 1859, when land had been attached, any person might come in and make a claim; on which

the Court was to decide, not the question of right but whether, when the attachment was issued, the land was in the actual possession or constructive possession of the judgment-debtor; and the claimant in any case would have to establish that he was in such possession, or that the judgment-debtor was in possession as trustee for him. The question of right was not decided, but if the claim was dismissed, he was within one year to go to the Civil Court to establish, not the question of possessory title only, but the question of the right to the property. He (the Advocate General) thought it preferable, in lieu of merely extending those provisions by reference to Act VIII of 1859, to introduce a substantive Section by which any person aggrieved, not merely claimed possession, actual or constructive, but any person claiming a right should have an appeal to the Collector, and from his decision there should be an appeal to the Commissioner. In the event of the Collector and Commissioner deciding against the claimant, the result would be that the sale would go on, and the purchaser would acquire a title, subject to any title which any other person might be able to assert in a Civil Court within the time prescribed. Then the next Section provided that all the provisions of Act VIII of 1859, with regard to sales in execution of decrees, in respect of arrest in execution of decrees for money, in respect of execution by imprisonment or out of the jurisdiction of the Court, should apply to certificates made under this Bill.

The 23rd Section provided for the registry by the Collector of any tenure which had been sold, thereby putting it on the same footing, and precisely on the same position in law and in fact, as in the case of a judgment-debtor; and the 25th Section provided for the repeal of certain provisions of the older Regulations, which did provide to a certain extent a procedure for the recovery of arrears.

He did not conceal from the Council that the subject was one of extreme difficulty. To fit in the necessary or desirable supplementary provisions with Act XI of 1859, he had found to be an extremely difficult and delicate task; and he could not flatter himself with the idea that, although he had the assistance of the experience of the hon'ble member opposite (Mr. Dampier), of his friend the learned Assistant Secretary, and of the hon'ble members opposite (Koomar Harendra Krishna and Baboo Ramananth Tagore) who sat on the Committee on Mr. Schaler's Bill, the desired object had been obtained. But he (the Advocate General) thought that, with the further consideration which the Bill would undergo in Select Committee and before the Council, a result might be obtained which would tend to the interests of the Government and of the public generally, and which would be more equally, more easily, and more uniformly enforced in defence of the rights of Government; and still more, that the rights of persons interested directly or remotely in the subject of any sale which might be made in execution of the provisions of this law, or of Act XI of 1859, would be most religiously protected.

With those remarks he begged to move that the Bill be read in Council.

KOOMAR HARENDRA KRISHNA said, with every deference to the statement made by the hon'ble and learned mover of the Bill, he did not think that the Bill was, strictly speaking, founded on

sound principles. The interpretation Section was the most important portion of the Bill. He called that the most important portion of the Bill because he understood the Bill to be founded on these interpretations. The interpretations, as given in the Bill, were opposed to the general acceptance of such terms, and were not in consistence with the recognised definitions given in the previous laws. The terms that he referred to were "revenue," and "proprietor." The word "revenue," according to the Bill, was synonymous to the word "rent," and he thought it might be considered to include every other demand due to Government. He did not consider that "revenue," and "rent" were synonymous terms; and he was supported in his opinion by that of the highest legal authority in the country, lately given in his decision in what was known as the great Rent Case. The Chief Justice in that decision observed:—

"The word, 'revenue' and the word 'rent' are used in the Code of 1793, in many places, in order to describe two very different things; the former meaning Government revenue, the latter meaning the rents payable to the zemindars by their talookdars, farmers, and ryots."

"It would, therefore, have been quite contrary to the rules contained in Regulation XLI of 1793 to use the word 'revenue' as applicable to the Zemindar's rents, or the word 'rent' to express the Government revenue."

But the use of the words 'revenue' and 'rent' in the same Code, for the purpose of designating sometimes the same thing, and sometimes two distinct things, would have been not only a violation of the express rule laid down in Regulation XLI of 1793, but in contravention as well of the principles by which the scientific use of language is regulated, as of the rules of legal construction."

The Chief Justice then referred to the opinion of Locke in his Essay on "The Human Understanding." Speaking of the abuse of words, Locke had said—

"Words fail to lay open one man's ideas to another's view, *first*, when men have names in their mouths without any determinate ideas in their minds, whereof they are the signs; *secondly*, when they apply the common received names of any language to ideas to which the common use of that language does not apply them; and *thirdly*, when they apply them very unsteadily, making them stand now for one, and by and by for another idea."

The same author had elsewhere said—

"It is hard to find a discourse written on any subject wherein one shall not observe, if he read with attention, the same words (and those commonly the most material in the discourse, and upon which the argument turns) used sometimes for one collection of simple ideas and sometimes for another, which is a perfect abuse of language. Words being intended for signs of my ideas to make them known to others, not by any natural signification, but by a voluntary imposition, it is a plain cheat and abuse when I make them stand sometimes for one thing and sometimes for another."

He (Koomar Harendra Krishna) thought that in matters of legislation uniformity in language should always be observed. There could not be any other result but confusion, if in one Act we interpreted one word in one way, and then interpreted the same word in another way in another Act.

The next term to which he had referred was "proprietor." The word, according to the Bill, might include farmers or tenants paying directly the Government demand. Now, he would ask the learned Advocate General to explain whether a tenant or farmer in a Government khas mehal paying rent directly to Government would be considered the proprietor of that tenure?

[THE ADVOCATE-GENERAL explained that the intention was distinctly laid down, that he should be considered the owner of the tenure for the purposes of the Act and dealt with as such.]

MOONAR HARENDEA KRISHNA continued.—The next point which he wished to refer to was Section 18. According to that Section, it would be found that the Collector, after he had filed the certificate of arrear demand in his office, was to consider himself to be the plaintiff, and the defaulter the defendant. Then, concerning the claims of third parties to the estate or tenure that was to be sold, the Collector was to adjudicate those claims, and his finding was to be considered as a decretal order of a Civil Court. He did not mean to say that the Collector, in deciding his own case, would not exercise his best judgment with equity and good conscience; but what he meant was, that if the two functions were kept separate—if the Collector had had not to execute his own decree, and had no judicial powers—it would be better for the country. He thought the time had come when the functions of the executive and the judicial authorities should be separated as far as possible, and he thought he was not mistaken in his belief that the Government had already admitted that principle.

He did not wish it to be understood that he was opposed to the Bill. As regards the realization of revenue by the sale of defaulting estates for revenue proper, he thought the present Bill was an improvement on Act XI of 1859; but as regards the realization of rent, and the enforcement of the other demands set forth in the interpretation of the word "demand," he thought the Bill was objectionable. He had already, in a previous speech, when Mr. Scholch introduced his Bill, stated that it was perhaps not founded on sound principle, that before obtaining a decree, the Government, in cases where it stood only as a zemindar, should enforce the realization of its own demands by the sale of the tenures with regard to which arrears were due.

BABOO PEARY CHAND MITTRA said, the frank and candid spirit in which the hon'ble and learned Advocate General concluded his remarks must be a source of satisfaction to the Council. We all participated in the desire that the Government should not be put to any great inconvenience or trouble in recovering its just demands; but it was also necessary for us to see that the mode by which that recovery was effected was just to itself and to the community. In the Bill different kinds of demands were classed with demands for arrears of land revenue, and definitions to that effect had been introduced. Some of those demands, as observed by the learned Advocate-General, were thus classed in the existing law; but it was a matter for consideration whether the sanction of existing law could justify what might not be strictly right. The great principle of jurisprudence was that there should be a wide distinction between the prosecutor and the Judge, and that the two offices should not be united in one. In the Bill before us, in Section 18, the Collector was justly described as plaintiff or agent on behalf of Government. He instituted the suit, and his certificate was held to be equivalent to a decree in favor of Government. Then appeals lay to the Collector or the Commissioner; but both were agents of the Government. It was immaterial whether the Government was to be considered in the same light as a private zemindar, or as

Government; but it was material that the Bill should not ignore judicial enquiry. The Bill to all intents and purposes did ignore judicial enquiry, when the mere certificate of the Collector was sufficient to establish his claim, though the certificate, which was generally prepared by the Collector's establishment, might, in nine cases out of ten, not be right. The Section conferred on the Collector most arbitrary power, and was likely to lead to much evil. He (Baboo Peary Chand Mittra) doubted whether legislation of such a character was to be found in the English or Continental Codes, and he thought it was clearly a retrograde move. It appeared to be special and exceptional on behalf of the Government in this country, and it interfered with the liberty of the people, inasmuch as it ignored judicial investigation. Any parallel to this legislation was scarcely to be found. This part of the Bill was therefore deserving of serious consideration, and he had not the least doubt that the hon'ble and learned mover of the Bill would see it corrected.

MR. ALCOCK said, he wished to ask the learned Advocate General a question with reference to the exceptions to Section 18. As he understood the Section, ryots paying other than fixed rents would be able to set the proprietors of estates at defiance. He considered that the purchaser of an estate at a revenue sale should possess summary powers, and should be able to eject ryots holding at other than fixed rents.

BABOO RAMANATH TAGORE said, he had the same objection to the Bill that he had to the one which this Bill had succeeded. As far as the realization of revenue was concerned, he had said before, and again said, that Government should exercise a summary power. But as to other demands, particularly those mentioned in the 6th, 7th, and 8th Clauses of Section 1, he would place the Government on the same footing as a private individual. It would indeed be very hard if the property of persons who became surety for others was liable to be sold without a regular investigation in a Court of Justice. It was true that the Collector was to be empowered to investigate such cases; but that Officer being an interested party, it was scarcely to be expected that his decision would be satisfactory. Besides, there was another difficulty in the way of sureties. Suppose, for instance, a tehsildar, or treasurer, or moburriar embezzled a large sum of money, and absconded without making good the defalcation, the surety would be placed in a very disadvantageous position, inasmuch as he would have no information for coming to a satisfactory settlement with the Collector. Either the surety must pay down what the Collector might demand, or allow his property to be sold summarily to the highest bidder, and also suffer imprisonment in case of deficiency.

The learned Advocate General, in order to justify the Bill, had stated at the last meeting that the power which the Bill conferred on the Government was not a new power, and that Government had exercised such power since 1799. He (Baboo Ramanath Tagore) did not wish to deny that such a power had existed, but he thought the Council should take into consideration the time when that power was conferred on the Government. In 1799 the Government of the country was in the hands of the East India Company, and at that time the public and the press had very little influence over the Government. The Government did what they liked, and according

made laws just to subserve their own purposes. But now the times had been very much changed. The press and public opinion was a protective power over the actions of the Government; and any law which the Legislature might enact underwent the severe criticism of the public and the press, and its merits and demerits were freely discussed; so that what was held to be justification of the law in 1789, might not be held to be a justification now, unless the law were found to be consonant to sound principles.

He would now say one or two words with regard to the details of the Bill. He fully agreed with the hon'ble member on his right (Koomar Harendra Krishnani) that the definitions in the Bill were somewhat arbitrary, and required much correction; he would not therefore occupy the time of the Council in referring to them, but would leave their consideration to the Select Committee, who would no doubt do justice to them. He (Baboo Ramanath Tagore) also agreed with the hon'ble member on his left (Baboo Peary Chand Mitttra) that Section 18 would give unlimited power to the Collector without any check or control. The Section provided that—

"Every certificate made in pursuance of the last preceding Section shall have the force and effect of a decree of a Civil Court, and the Collector, by whom such certificate shall have been filed, shall be deemed to be the plaintiff, and the person named as debtor therein shall be deemed to be the defendant."

According to that Clause, the Collector was the plaintiff; he would also be the Judge; he would, moreover, be the Executive Officer; in fact, he would be all-in-all. Now in his (Baboo Ramanath Tagore's) opinion such a coalition of power was incongruous, and would make the people form an unfavorable opinion as to the motives and intentions of the Government. He would therefore propose that a Section be introduced to the effect that if a person was dissatisfied with the decision of the Collector, he might go to the Judge, and have the matter properly sifted.

As regards the 19th Section, it gave the Collector power to seize all the property of a defaulter. This would appear to be a very hard proceeding towards those who had become debtors to Government; because, if a certificate was for Rupees 200 or Rupees 400, for such a small sum the whole of the property of the defaulter, which might extend to two or three lakhs of Rupees, might be seized, and he would thereby lose his credit, and not be able to negotiate or mortgage that property. That would be a great hardship, and he (Baboo Ramanath Tagore) trusted that the learned Advocate-General would take this matter into consideration in Committee.

He would now proceed to Section 20, which gave a person the power of petitioning the Collector, if aggrieved by the issue of a certificate. Looking to the mischievous tendency of this Section, he would suggest that it should be so altered as to give the person aggrieved power to petition the Collector before the certificate was issued. Because what would be the use of giving the defaulter the power of going before the Collector, when his character and credit had already been injured by the seizure of his property. It was just as when a house was on fire, and nearly burnt to ashes, and a fire-engine was placed in the hands of the unfortunate owner, after the

whole mischief had been done, for the purpose of quenching the raging element.

In conclusion, he would observe that if this Bill were passed without material alterations, the functions of the Civil Court, so far as Government demands were concerned, would entirely cease; and would that, he asked, be just to the subject?

Those were some of the objections to the Bill, and he trusted that they would be taken seriously into consideration before the Bill was passed.

Mr. DAMPIER said, from what had passed, he had no doubt that the Bill would be referred to a Select Committee. He therefore only proposed to make a few suggestions for the consideration of the learned Advocate General in Committee, and should leave him to deal with the objections that had been advanced. He should leave him to explain that the definition of the term "revenue" in the Bill did exactly fulfil the conditions of the construction put upon it by the learned Chief Justice in the judgment which had been referred to. He (Mr. Dampier) would, however, read another passage out of the same judgment which had just caught his eye—

"In the Regulations prior to the decennial settlement, no doubt the word 'revenue' included rent, not because the same word was intended to refer to two different things, but because at that time the rents of lands were Government revenue."

In other words, the rent paid by the tenant became revenue when it was paid directly to Government without the intervention of a zemindar; and that was precisely the construction put upon the word "revenue" in the Bill.

In the definition of the word "estate," he hoped the Committee would carefully consider the last Clause. It said that the word meant any land, or share in land, subject to the payment of an annual sum to Government, or in respect of which a separate account might, in pursuance of Section 10 or Section 11 of Act XI. of 1859, or of any other law or usage, have been opened. The definition, he thought, would require careful revision, for it was obvious that separate accounts of shares in estates might be opened for other purposes than those of the Collector, and by order of other authorities; as for instance, by order of the Civil Courts. But what was meant in the Bill was that shares recorded under the special provisions of Sections 10 and 11 of Act XI of 1859, and no others should be considered estates within the meaning of this Act.

Then, by the 2nd Section of the Bill, Section 53 of Act XI of 1859 was repealed. The Committee would have to consider whether Section 54 should not go with it.

It appeared to him that the 6th Section of the Bill, which provided for the personal service of notice at the place of residence of every proprietor of the estate, would really be impracticable to carry out. In a Note which had been printed as an annexure to the Bill, he had given his reasons for that opinion, which he hoped the Select Committee would consider. In many estates in Behar—often estates of small area—there were a number of proprietors, some 50 or 60, borne on the Register of the Collector. The Collector had no cognizance of any proprietors of the estate, except those whose names were borne on his Register. It would be difficult enough to serve each one of those 50 or 60 proprietors with

the notice required, if they were alive and to be found; but out of that number some 25 had, perhaps, been dead for years; and others, whose names were not on the Register, had succeeded to their rights. He thought, therefore, that it would be unwise to insist on such personal service on each person. In the Note to which he had already referred, he had stated that if the notice were served at the Sub-Divisional Kutcherry, and the Kutcherry of the proprietor, which was well known throughout the estate, the notice would be sure to reach the proprietor. Whatever might be the provisions which the Select Committee might think proper to make, he would suggest that some Clause be introduced which would make it unnecessary for the Collector to stay giving the certificate of finality of sale, unless the omission proved to have taken place in the preliminary proceedings, were such as materially to injure the interests of the proprietor. If such a provision were not introduced, the legality of sales would constantly be contested on trifling and immaterial informalities; for instance, the Bill required that notices be posted in every Moonsiff's Court within the jurisdiction of which any portion of the estate was situated. One field of the estate might be situated in some Moonsiff's Court of which the Collector had no knowledge; and if the law were inflexible as to that being done, it would be a valid objection to the sale being final.

In Section 9 it was provided that it should be lawful for proprietors of tenures and of farms held for terms of years to cause the same to be registered according to the provisions of Act XI. of 1859, although the same may not be held immediately of the proprietors of estates. When the learned Advocate General had talked over the Bill with him (Mr. Dampier), that provision was not discussed, and he (Mr. Dampier) did not know on what grounds it had been introduced. If the Section stood, it would be necessary to make some further provision, because in Act XI. of 1859 the Sections concerning registration, whether common or special, recognised only the recorded proprietors of estates; that was to say, notice was to be served on them before the tenure was protected, and the recorded proprietor only was to be given an opportunity of making objections; but it was evident that if a tenure of the third degree was to have similar protection, notice must be given to the proprietors of the tenures of the second degree, as well as to those of the first degree. Detailed Procedure Clauses would be necessary.

By the 11th Section no such notice was required as was prescribed by the 6th Section. The two should be uniform.

In the 21st Section he would ask the Select Committee to lay down clearly and specifically whether the revenue authority above the Commissioner was to exercise any, and if so, what power, of interference on appeal, or by way of revision.

The 23rd Section provided that whenever a Collector should have sold any tenure or farm, he should register the same in pursuance of the provisions of Act XI. of 1859. It was, he thought, absolutely necessary to specify the Section under which the registration was to be effected, because under the Act there were two kinds of registration; and he was not quite sure that the registration here intended was a registration under

Act XI. of 1859 at all. If it was, it would be necessary to specify whether the Section referred to common or special registry.

With those remarks he would support the motion for the reading of the Bill.

THE ADVOCATE GENERAL said, he did not understand that any opposition was offered to the motion for the reading of the Bill, although observations, more or less strong, had been made on certain provisions of the Bill, and with regard to certain principles said to be involved in the measure. He was glad that those opposing views had been ventilated at this early opportunity, and he was glad also to think that those views would be fully represented in the Select Committee on the Bill, which he should presently move to appoint. He would content himself now with making a very few observations on the criticisms on the Bill which had been made by hon'ble members who were opposed to some of its provisions. The suggestions made by the hon'ble member opposite (Mr. Dampier) would receive attention in Committee.

Exception had been taken to the definition of the terms "proprietor" and "revenue," and it was said, particularly with regard to the definition of the term "revenue" that it was inconsistent with the existing state of the law as laid down by the decision of the learned Chief Justice of the High Court. He was perfectly aware that in strictness it was so, and the sole object of the definition given in the present Bill was to obviate the difficulty and to remedy the confusion caused by the wrong use of terms on which the Chief Justice had remarked in the decision, quotations from which had been made. The distinct object of the definition was to get rid of all the difficulties pointed out in that decision, and to establish what he (the Advocate General) conceived the unimpeachable principle existing prior to the permanent settlement, that there should be no distinction between rent payable to the general public for the occupation of land belonging to them, and any other branch of the public revenue; and to say that that was inconsistent with the use of terms in existing Acts, was merely saying that those Acts made distinctions which in principle were unfounded and which ought no longer to be continued. Advantage was attempted to be taken of an expression in a Section of the Bill, to the effect that the Collector was to be considered as plaintiff, and that the debtor in arrear was to be considered as the defendant; and then we had the usual common-place that the Collector was deciding his own case. There could be nothing more futile than to make that objection to the present Bill. The simple reason for the provision referred to was a mere matter of form with reference to the application of the provisions of Act VIII. of 1859, in order that where that Act spoke of the plaintiff and defendant, it might be known who were the parties referred to. The Collector was to be judge, not in his own case—it was idle to call it his own case—but whether or not there were arrears of revenue or of other demands due; to be judge whether or not the holding of the person against whom the certificate was to have the effect of a decree of Court should be sold or not. There was no question of the separation of the executive and judicial functions. The Collector was to be judge for this reason, that he (the Advocate General) could not conceive that there should be a greater course

the country than that, after the revenue authorities had ascertained, in the exercise, he would presume, of the best of their means and knowledge and judgment, that arrears did exist, there should be an appeal to the Civil Court. He was sure, from his limited experience in Mofussil matters, that the result of such a system would be, that everybody who could, would resort to litigation, not only for the purpose of avoiding the payment of just claims, but for setting up collusive or hostile claims by means of the litigation which the system would open out. He was totally opposed to allowing any portion of the investigation to be made in the Civil Court, which would result in the withdrawal of the attachment or execution by sale of the revenue authorities. It was said that the principle under which the Bill proceeded was unknown in England or any country in Continental Europe. He could only say that any one conversant with the existing system of law in England, in France, and, he believed, also in Prussia, with regard to the collection of the public revenue, who would compare their stringency with the most stringent and arbitrary provisions of this Bill or of Act XI of 1859, would see that the provisions of the law as it existed here, and in this Bill, were leniency itself as compared with the existing system in Europe. When you consider that in England a person liable to the payment of duties, could not only have his property sold, but also the property of his debtor, and the property of the debtor to that debtor, and of that debtor's debtor, and so on, to the fourth degree, the provisions of the present Bill, and of the Act which it proposed to amend were, as it were, nothing compared to the stringent, not to say too stringent, law which existed for the protection of public demands in England and elsewhere. To take another branch of the revenue in this country. Was any objection ever made to the system established under the Consolidated Customs Act of 1863? The Collector declared that such and such articles were liable to such and such duties. Was there an appeal to the Civil Court? There was an appeal to the Board of Revenue, and an ultimate appeal to His Honor the Lieutenant-Governor. That was provided, because it would be impossible that the business of the country could otherwise be carried on. He (the Advocate General) was positive that the business of the country could not be carried on any where if the decision of the Revenue authorities in matters relating to the collection of the public revenue, were to be referred to regular litigation in the Civil Court. It would not only be totally unnecessary for the protection of public debtors, but quite incompatible with the due protection of the public revenue.

As to what was said as to the power of attaching all the property of a defaulter in respect of what might be a small demand, and the uselessness of giving him an appeal as he had lost his credit, it appeared to him (the Advocate General) that there was very little force in that objection. He could not see how a man's credit could be affected by such a proceeding; his simple remedy was to pay the demand, and thereby obtain the release of his property. In giving the power of attaching all the property of a defaulter, it was not intended to give the power of disposing arbitrarily of the whole property for the recovery of a small demand. That must be left to the discretion of the revenue authorities, and any Collec-

tor who abused the discretion vested in him would no doubt fall under the censure of the Government.

He had made those observations on what had been said, more with the view of further discussion in Committee, than as desiring to be understood that the objections made to-day were finally disposed of. There had been great difficulty in the preparation of the Bill, and there would no doubt be still greater difficulties to overcome; and he hoped that the time which had been occupied to-day had not been lost. The difference of cost to the parties most interested, that was to say, the debtors to Government, which had resulted from the system of judicial determination and the system of decision by the executive Revenue authorities, was such as to dispose of the case. Statistics had been prepared which showed the result. Under the system which the Bill proposed to restore, namely, the determination of questions of arrears of revenue, and other demands due to Government, by the Revenue authorities, the cost in any one case did not exceed 12 annas. But, according to the system experimentally introduced, he found, from a tabular statement before him, that the charges were as much as this: the cost of stamp on the institution of the suit and the poon fees before and after decree, in small holdings up to 10 Rs. was Rs. 2-1; in holdings up to Rs. 15 the cost was Rs. 2-9; in holdings up to Rs. 20, it was Rs. 3-1; and in holdings up to Rs. 50, Rs. 6-1; that was to say, the cost amounted to a tax of very nearly 10 per cent. But, in the determination of all cases by the executive authorities, the cost was no more than 12 annas. On every ground, therefore, even for the benefit of the parties whom it was sought to be benefited by the substitution of the judicial for the revenue authorities, it was quite clear that it was better that the system of the Bill should be adopted.

There was only one other point to which he would advert, namely, the question put by the honorable member on his right (Mr. Alcock) with regard to the effect of sales as respects tenures under Clause 2 of Section 12. He should mention, generally, that the effect which that Section proposed to give to sales under the Bill of tenures, was precisely the same, neither more nor less, than the effects under Act XI of 1859 of sales of estates. What the second Clause provided was, that where a tenure had existed from the time of the permanent settlement, the sale of the estate, or of the superior tenure, out of which that tenure was created, should not have the effect of forfeiting the tenure, but should simply enable the purchaser, under the sale, to have the same right of enhancement of rent as he would have had under the existing law, that was to say, it would put the purchaser in the same position in which he had been since the permanent settlement.

The motion was then agreed to, and the Bill referred to a Select Committee consisting of Mr. Trevor, Mr. Thompson, Baboo Ramanath Tagore, Koomar Satyanand Ghoshal, and the mover.

ASSESSMENT OF ALLUVIAL LANDS.

Mr. THOMPSON moved that the Bill "to amend the provisions of Act IX of 1847 (an Act regarding the assessment of lands gained from the

sea or from rivers by alluvion or dereliction within the Provinces of Bengal, Behar, and Orissa," he read in Council. In doing so, he said the Bill was embraced under three Sections, and contained, he thought, all that was requisite in the way of legislation to meet the object in view. That was by the repeal of Section 7 of Act IX of 1847, to remove the obstacles which at present interfered with the right of Government to take possession of churs and islands in large and navigable rivers, such as those described in Clause 3, Section 4 of Regulation XI of 1825. He had endeavoured to show the Council on the last occasion, when he had the honor of moving for leave to introduce the Bill, that the law, as it stood, operated with hardship and injustice against the Government, by compelling it to wait for the preparation of a new map, which could not take place till ten years had elapsed from the previous survey of a District; and that in that interval parties who had no claim or right or title to such islands, were in the habit of taking possession of the same,—an act which Government were powerless to avert or to stay.

He had thought it best, with the object proposed, to repeal by the 1st Section of this Bill the whole of Section 7 of Act IX of 1847, and by the 3rd Clause to re-enact it with such modifications as would empower the Government, on the appearance of such an island, to assert its right to take possession of the same, with a view to its subsequent disposal or settlement, irrespective of the proceedings of the revenue survey. It seemed to him that the Bill might have stopped there. The provisions of Act IX of 1847, and the declaration of the rights which Regulation XI of 1825 contained, would be sufficient for the adjustment of any disputes which might arise in suits before the Civil Courts. It would belong, however, from one of the annexures to the Bill, (he alluded to the report of Mr. Grote, the senior member of the Board of Revenue, whose opinion on all revenue questions was entitled to the greatest respect) that in advocating the repeal of Section 7 of Act IX of 1847, which this Bill proposed to do, he went on to suggest that, if at any time within three years of the Government occupation of an island, its lands should stretch out and connect itself with the mainland, the whole should be surrendered to the riparian owner. His remarks were as follows:—

"It would be expedient to re-assert the right of Government at once to occupy islands of all kinds. River islands may, on coming in contact with the shore, be unobjectionably settled with the riparian proprietor whenever the contact takes place. It is the public assessment on them, and not the proprietary profits, which Government is bound to secure. Under the present ruling, islands occupied as such by Government on the results of its new map, will be assessed by the periodical Settlement Officer, but should they stretch toward, and connect themselves with the river bank, say three years after the Settlement, they become part of the estate of the riparian proprietor, whose revenue will not be subject to adjustment till the next survey."

He (Mr. Thompson) did not see the good policy of such a proceeding, nor could he discover upon what principles it was sought to be established. It was undoubtedly opposed to the provisions of Regulation XI of 1825, which regulated the determination of claims to accretions of land, on the broad general principle that lands gained by gradual accession from a recess of the river or of the sea should be considered to be an increment

to the tenure of the person to whose estate they were attached.

It appeared to him (Mr. Thompson) that a chur or island, such as that described in Regulation XI of 1825, when taken possession of by Government, should be in the same position as any other estate of Government borne on the rent-roll of a District; and that all accretions to it by the gradual retirement of the river or the sea, should be equally at the disposal of Government, on the principles laid down in Regulation XI of 1825, as lands accreting to the property of a riparian landholder are an increment to his tenure. He would observe that this view of the law, which he had embodied in the 2nd declaratory Section of this Bill, had the support of more than one decision in the highest Court of Judicature in this country.

Of course cases of difficulty would arise, which might require reference to Courts of law. But he did not see that additional legislation to meet any such difficulties was necessary. The case had suggested itself of accretions simultaneously extending from the main land to the island, and from the island towards the shore. He did not see that any legislative definition or declaration would meet the case better than what the law, as it existed, provided, *viz.*, that all lands gained by accretion should be an increment to the land to which it attaches. In the case referred to, it would be a matter to be decided by evidence how far an admitted accretion belonged to one side or the other. There was, in the reports of cases decided by the High Court, one which directly applied this rule in a similar difficulty, where, in delivering judgment, the learned Chief Justice, advertg to the rule that a person in possession of land was *prima facie* entitled to it and to all increments to it, went on to observe that—

"it might be a very difficult question to determine in this case, what portion of the land attached itself as an increment by gradual accretion to A's property; and what portion to lands in the possession of B. But the difficulty does not supersede the necessity. The Plaintiff could only succeed on the strength of the evidence which he could adduce on this point."

Another question had been suggested that, supposing an island should not be taken possession of by Government on its first appearance, and that in the course of a few years, it was found in the occupation of a person who had no right beyond the right of possession, could Government recover possession then? In such a case if, at the time of the Government's assertion of its title, it was an island separated by water which was fordable, or if it was attached in any way to the mainland, Government would have lost its right by not having taken action at once when the chur appeared. The *status* of the island, when Government asserted its title, would be the guide to a decision as to its right.

It was necessary to say that the present Bill only referred to churs or islands thrown up in rivers or in the sea, and in no way affected any other parts of Act IX of 1847. Nor would it apply to cases where a river by a sudden change in its course intersected an estate, thus forming an island of any portion of its lands. The land here, on being clearly recognized, would still remain the property of its original owner, as by Clause 2, Section 4, Regulation XI of 1825.

BABU PEARY CHAND MITTRA said, the principle on which the claim of Government was based appeared equitable. But there was one remark which he wished to submit with reference to the

3rd Section of the Bill, which provided that any party aggrieved by the act of the local revenue authorities in taking possession of any island, should be at liberty to contest the same by a regular suit in the Civil Court. He would ask whether it would not be better that any person aggrieved by the act of the Collector or the Commissioner should have the option of carrying his grievance before the higher revenue authority, namely the Board of Revenue? Under the Section as it stood, it was not clear whether the aggrieved party had that option. It merely said that the local revenue authorities should report their proceedings for the approval of the Board, and therefore, if the Section were made definite, and conferred on the aggrieved party, the right of appeal to the Board of Revenue, and then if not satisfied with the decision of the Board to contest the same by a regular suit, it would be better for the individuals, whose interests might be affected by the proceedings of the local revenue authorities.

MR. THOMPSON said, the hon'ble member was scarcely consistent in the remarks he had just made, with the observations which he had addressed to the Council a short time since. He had then stated that all objections to the proceedings of the Collectors should be made the subject of a Civil suit before the award became final; and he had now told the Council that they should first

interpose the decision of the Board of Revenue; and if the aggrieved party was dissatisfied with their decision, he should then be permitted to resort to the Civil Court. The words of the Bill were taken from Act IX of 1847, and he (Mr. Thompson) certainly thought that it would be unnecessary to delay the action of the Revenue Commissioner by interposing a power of appeal to the Board of Revenue as a necessary preliminary to a Civil action.

MR. KNOWLES said, it appeared to him that some provision might be made in cases where churs which were thrown up were taken possession of by Government, who thus prevented the adjacent proprietor from having the same access to the river which he previously had. He would therefore suggest the insertion of a Clause giving to the adjacent proprietor a free right of way through churs taken possession of by Government.

MR. THOMPSON remarked that the suggestion of the hon'ble member would be considered in Committee.

The motion was then agreed to, and the Bill referred to a Select Committee, consisting of Mr. Trevor, Koomar Satyanund Ghosaul, and the mover.

The Council was adjourned to Saturday, the 18th instant.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 8th to 14th April 1868.

| Month. | Date. | Reduced Reading of Barometer at 10 A. M. | THERMOMETER. | | Daily Range of the Temperature. | Mean Temperature for the day. | Mean Wet Bulb. | Computed Mean Dew-point. | Mean Degrees of Humidity for the day. | Prevailing Direction of Wind during the day. | Rain. | Pressure of Wind. | | Daily Velocity of Wind. | GENERAL REMARKS. |
|--------|-------|--|------------------|-----------------|---------------------------------|-------------------------------|----------------|--------------------------|---------------------------------------|--|-------|-------------------|--------|-------------------------|---|
| | | | Highest Reading. | Lowest Reading. | | | | | | | | Max. | Min. | | |
| April | 8th | 29.856 | 90.0 | 74.5 | 14.5 | 82.1 | 78.9 | 73.3 | 0.75 | S | ... | 2.5 | 1.08.1 | 108.1 | Chiefly cumuli. Brisk wind from 8 1/2 A. M. to 6 1/2 P. M. |
| | 9th | 29.845 | 88.0 | 77.5 | 10.5 | 83.0 | 77.2 | 73.1 | 73 | Variable | ... | 2.0 | 1.07.8 | 107.8 | Chiefly and scattered cumuli. Brisk wind from 4 1/2 to 6 1/2 P. M. Lightning at 7 and 8 P. M. |
| | 10th | 29.812 | 91.0 | 77.0 | 14.0 | 83.3 | 78.0 | 74.4 | 76 | S S W | ... | 4.9 | 1.07.2 | 107.2 | Clear and scattered clouds. Brisk wind from 7 A. M. to 11 1/2 P. M. |
| | 11th | 29.808 | 91.0 | 74.0 | 17.0 | 82.9 | 77.4 | 73.5 | 74 | S & S S W | ... | 14.0 | 1.09.0 | 109.0 | Clear and scattered cumuli. High wind from midnight to 2 A. M. and from 6 1/2 A. M. to 8 1/2 P. M. Thunder at 7 P. M. Lightning at 7 and 8 P. M. |
| | 12th | 29.792 | 92.0 | 75.0 | 17.0 | 81.4 | 75.4 | 71.3 | 73 | S S W & S S E | 0.70 | 21.0 | 1.08.4 | 108.4 | Scattered clouds and scattered cumuli. High wind from 9 1/2 A. M. to 6 1/2 P. M. Thunder at 5 and 6 P. M. Lightning from 8 to 6 P. M. Rain at 8 and 7 P. M. |
| | 13th | 29.797 | 90.4 | 76.0 | 15.4 | 82.3 | 77.9 | 74.8 | 79 | S & S S W | ... | 8.0 | 1.08.7 | 108.7 | Chiefly scattered cumuli. Brisk wind from 8 A. M. to 6 P. M. |
| | 14th | 29.804 | 90.0 | 79.0 | 11.0 | 83.5 | 76.8 | 75.4 | 77 | S & S S W | ... | 4.5 | 1.06.4 | 106.4 | Scuds from south. Brisk wind from 7 A. M. to 11 1/2 P. M. Lightning at 9 and 1 P. M. |

The mean Temperature and the mean Wet Bulb are derived from the twenty-four hourly Observations made during the day.

The Dew-point is computed with the Greenwich constants. The figures in column ten represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1 foot 2 inches, and that of the Anemometer 70 feet 10 inches, above the level of the ground. The velocity of wind, as indicated by Robinson's Anemometer, is registered from noon to noon.

| | | | | | |
|---|-------|--|-----------------------|-----|---------|
| The extreme variation of Temperature during the past seven days | | | ... | ... | 19.0 |
| The Max. Temperature during the past seven days | | | ... | ... | 93.0 |
| The Max. Temperature during the corresponding period of the past year | | | ... | ... | 98.0 |
| The mean humidity during the past seven days | | | ... | ... | 0.75 |
| The mean humidity during the corresponding period of the past year | | | ... | ... | 0.61 |
| | | | | | Inches. |
| The total fall of rain from 8th to 14th | | | { by lower rain gauge | ... | 0.70 |
| | | | { by Anemometer gauge | ... | 0.50 |
| Ditto | ditto | from 8th to 14th, average of fourteen previous years | ... | ... | 0.17 |
| Ditto | ditto | between the 1st January and the 14th current | ... | ... | 2.26 |
| Ditto | ditto | during the corresponding period of the past year | ... | ... | 3.03 |

The 17th April 1868.

GOPENKAUTH SEN,
In charge of the Observatory.

Meteorological Report up to 7th April 1868.

| STATION. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Relative Humidity $\frac{100}{100}$. | WIND. | | Rain. | WEATHER. |
|-------------|--------|-------|---------------------------|--------------|------|---------------------------------------|------------|-----------|-------|---|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| CALCUTTA. | 1st | 10 | 30.015 | 84 | 77 | 58 | S S W | ... | ... | Cirrocumuli to E. and W. |
| | | 16 | 29.888 | 85 | 78 | 44 | S S W | ... | ... | Cumuli to E. and S., rest cirrocumuli. |
| | 2nd | 10 | 29.093 | 86 | 77 | 64 | W by S | ... | ... | Scattered cirrocumuli. |
| | | 16 | 29.831 | 95 | 73 | 31 | N | ... | ... | Clear. |
| | 3rd | 10 | 29.917 | 88 | 71 | 40 | N | ... | ... | Breezy. |
| | | 16 | 29.750 | 95 | 73 | 28 | W N W | ... | ... | Cirrocumuli to S. E. |
| | 4th | 10 | 29.914 | 90 | 74 | 44 | S W | ... | ... | Cirri to S. and S. W. |
| | | 16 | 29.818 | 84 | 73 | 31 | S W | ... | ... | Stratoni to S. E. rest cumuli. |
| | 5th | 10 | 29.869 | 77 | 70 | 61 | S E | ... | 0.41 | Scattered cumuli & cirrocumuli. |
| | | 16 | 29.844 | 88 | 65 | 84 | S E | ... | ... | Overcast, thunder and raining. |
| | 6th | 10 | 29.073 | 78 | 75 | 86 | S S E | ... | 0.70 | Clear. |
| | | 16 | 29.849 | 89 | 78 | 60 | S by W | ... | ... | Scattered cumuli. |
| | 7th | 10 | 29.897 | 85 | 79 | 76 | S | ... | ... | Cumuli and clouds from S. |
| | | 16 | 29.741 | 89 | 79 | 61 | S S W | ... | ... | Stratoni. |
| RANGOON. | 1st | 9-30 | 29.993 | 84 | 78 | 79 | R W | Moderate | ... | Light clouds. |
| | | 16 | 29.855 | 86 | 81 | 78 | S W | Moderate | ... | A few scattered clouds. |
| | 2nd | 9-30 | 29.894 | 84 | 81 | 87 | W | Moderate | ... | Clear. |
| | | 16 | 29.754 | 91 | 83 | 66 | W | Light | ... | Dark clouds rising in W. horizon. |
| | 3rd | 9-30 | 29.827 | 87 | 75 | 55 | N | Moderate | ... | Hazy. |
| | | 16 | 29.710 | 86 | 79 | 72 | N | Light | ... | A few scattered clouds. |
| | 4th | 9-30 | 29.951 | 85 | 80 | 70 | R W | Light | ... | Cloudy. |
| | | 16 | 29.776 | 86 | 81 | 79 | R | Moderate | ... | Scattered clouds. |
| | 5th | 9-30 | 29.871 | 85 | 81 | 88 | W | Light | ... | Cloudy. |
| | | 16 | 29.789 | 89 | 76 | 74 | W | Light | ... | Ditto light fall of rain at noon. |
| | 6th | 9-30 | 29.866 | 83 | 80 | 87 | S | ... | ... | Slight clouds, another slight fall of rain last evening. |
| | | 16 | 29.784 | 87 | 81 | 79 | R | ... | ... | Slight scattered clouds. |
| | 7th | 9-30 | 29.841 | 86 | 80 | 78 | R W | Moderate | ... | Scattered clouds. |
| | | 16 | 29.725 | 86 | 81 | 79 | S | Moderate | ... | Ditto ditto. |
| CHITTAGONG. | 1st | 9-30 | 29.937 | 83 | 78 | 63 | S by E | Light | ... | Scattered cumuli, unsteady wind. |
| | | 16 | 29.819 | 85 | 78 | 71 | S | Moderate | ... | Hazy, scattered cumuli, unsteady wind. |
| | 2nd | 9-30 | 29.807 | 82 | 78 | 82 | S E by S | Light | ... | Covered with cumuli. |
| | | 16 | 29.730 | 85 | 77 | 68 | N | Moderate | ... | Unsteady wind, nimbi towards W. and N. W. |
| | 3rd | 9-30 | 29.807 | 82 | 78 | 67 | S W by W | Light | ... | Cumulocirri, a few drops of rain last evening. |
| | | 16 | 29.894 | 87 | 78 | 65 | S W | Light | ... | Cloudy horizon. |
| | 4th | 9-30 | 29.830 | 82 | 78 | 67 | S | Light | ... | Cumuli, hazy. |
| | | 16 | 29.744 | 85 | 77 | 68 | S W | Light | ... | Hazy, cumuli towards N. E. & E. |
| | 5th | 9-30 | 29.879 | 82 | 74 | 66 | N N W | Moderate | ... | Unsteady wind, overcast, threatening. |
| | | 16 | 29.850 | 78 | 70 | 65 | N N W | Fresh | ... | Nimbi, drizzling, unsteady wind, strong wind from all points with a few drops of rain and severe lightning at noon. |
| | 6th | 9-30 | 29.807 | 77 | 72 | 77 | S by R | Light | ... | Hazy, heavy rain last night. |
| | | 16 | 29.773 | 80 | 76 | 82 | W S W | Light | ... | Overcast. |
| | 7th | 9-30 | 29.816 | 78 | 75 | 84 | S E | Light | ... | Cumuli, hazy. |
| | | 16 | 29.718 | 82 | 77 | 76 | W S W | Fresh | ... | Heavy towards N. N. E. and W. |
| ARYAN. | 1st | 9-30 | 29.091 | 84 | 76 | 75 | S W | Light | ... | Cirrocumuli from N. E. to N. W. |
| | | 16 | 29.019 | 85 | 79 | 75 | S W | Light | ... | Fine. |
| | 2nd | 9-30 | 29.107 | 82 | 78 | 82 | S W | Light | ... | Ditto |
| | | 16 | 29.829 | 85 | 82 | 91 | W | Moderate | ... | Winds from N. W. |
| | 3rd | 9-30 | 29.007 | 85 | 79 | 71 | N W | Light | ... | Fine. |
| | | 16 | 29.814 | 87 | 82 | 79 | W | Moderate | ... | Fine. |
| | 4th | 9-30 | 29.934 | 82 | 78 | 78 | R | Light | ... | Little rain between 8 and 9 not measurable, threatening to the N. E. |
| | | 16 | 29.814 | 87 | 81 | 76 | W | Light | ... | Fine. |
| | 5th | 9-30 | 29.927 | 82 | 78 | 82 | W | Light | ... | Fine. |
| | | 16 | 29.844 | 87 | 80 | 72 | W N W | Light | ... | Fine. |
| | 6th | 9-30 | 29.987 | 85 | 73 | 77 | N E | Light | ... | Fine. |
| | | 16 | 29.890 | 85 | 76 | 84 | W N W | Light | ... | Fine. |
| | 7th | 9-30 | 29.917 | 83 | 75 | 87 | N E | Light | ... | Fine. |
| | | 16 | 29.826 | 86 | 78 | 82 | S by W | Light | ... | Fine. |
| COCHIN. | 1st | 9-30 | 29.055 | 86 | 73 | 44 | W by N | Light | ... | Cirri to N. N. W. and hazy. |
| | | 16 | 29.913 | 93 | 73 | 31 | S by W | Light | ... | Scattered cirri overhead, cumuli to N. W. and S. W. and misty horizon. |
| | 2nd | 9-30 | 29.028 | 86 | 78 | 61 | S W | Light | ... | Clear, misty horizon. |
| | | 16 | 29.856 | 93 | 74 | 37 | S by W | Light | ... | Cirrocumuli, cumulostrati; distant thunder in W. with approach of a thunder storm. |
| | 3rd | 9-30 | 29.966 | 86 | 73 | 61 | N | Light | ... | Scattered thin cirri and misty horizon. |
| | | 16 | 29.817 | 93 | 76 | 43 | E | Moderate | ... | Cumulocirri, cirrocirri, and misty. |
| | 4th | 9-30 | 29.971 | 87 | 79 | 68 | S by W | Light | ... | Hazy, clear sky. |
| | | 16 | 29.845 | 89 | 79 | 63 | S by W | Moderate | ... | Cumulocirri to S. W. Nimbi with thunder and lightning in S. S. E. and few drops of rain. |

| STATION. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | WEATHER. |
|----------------------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|---------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| | | | Inches. | ° | ° | | | | Inches. | |
| CUTLER, (Continued.) | 4th | 9-30 | 29.832 | 88 | 79 | 66 | S W | Light | ... | Scattered cirri, altostrati and haze. |
| | | 10 | 29.812 | 90 | 80 | 63 | S by E | Light | ... | Distant thunder in N. W. at 11 hours. A passing N. W. at 15.5 accompanied with thunder and slight rain lasted for 1/2 an hour. Cirri overhead cumulostrati to N. N. E. and S. S. E. with much misty; unsteady wind at 15-16 N. W.* |
| | 6th | 9-30 | 29.898 | 83 | 79 | 83 | S E | Light | ... | Morning covered with strat. cirri overhead, cumulostrati round horizon. |
| | | 10 | 29.828 | 89 | 79 | 81 | S by E | Light | ... | Cumulostrati, cirrostrati, etc. and misty. |
| | 7th | 9-30 | 29.913 | 86 | 79 | 72 | S by E | Light | ... | Scattered cirrostrati and overcast. |
| | | 10 | 29.784 | 90 | 79 | 50 | S by E | Moderate | ... | Scattered cirrostrati to N. W. and misty. |
| | 1st | 10 | 30.047 | 89 | 78 | 83 | S S E | 10° | ... | Passing clouds. |
| | | 10 | 29.813 | 87 | 80 | 73 | N S E | 14° | ... | Clear. |
| | 2nd | 10 | 30.034 | 89 | 79 | 62 | N S E | 8° | ... | Passing clouds. |
| | | 10 | 29.878 | 81 | 73 | 66 | S S | 15° | ... | Fine. |
| MADRID. | 3rd | 10 | 29.959 | 89 | 76 | 52 | S | 9° | ... | Clear. |
| | | 10 | 29.831 | 85 | 77 | 68 | S E | 14° | ... | Clear. |
| | 4th | 10 | 29.907 | 89 | 78 | 53 | S | 14° | ... | Fine with light clouds. |
| | | 10 | 29.816 | 86 | 78 | 68 | S E by S | 17° | ... | Clear. |
| | 5th | 10 | 29.952 | 87 | 78 | 66 | S S E | 19° | ... | Fine with light clouds. |
| | | 10 | 29.839 | 85 | 77 | 64 | S E | 16° | ... | Clear. |
| | 6th | 10 | 29.883 | 88 | 76 | 65 | S by E | 11° | ... | Passing clouds. |
| | | 10 | 29.824 | 89 | 78 | 68 | S E | 14° | ... | Clear. |
| | 7th | 10 | 29.934 | 88 | 78 | 60 | S S E | 13° | ... | Fine with light clouds. |
| | | 10 | 29.805 | 85 | 77 | 60 | S E | 15° | ... | Clear. |
| REARICA. | 1st | 10 | 29.767 | ... | ... | ... | W | ... | ... | Cumuli strati. |
| | | 10 | 29.639 | ... | ... | ... | W | Light | ... | A few drops of rain from, a passing thunder cloud. |
| | 2nd | 10 | 29.814 | ... | ... | ... | N W | ... | ... | Cirri. |
| | | 10 | 29.606 | ... | ... | ... | W | Light | 0.07 | Thunder storm and rain with strong wind at 3 A. M. |
| | 3rd | 10 | 29.700 | ... | ... | ... | W | Moderate. | ... | Cirri, strati. |
| | | 10 | 29.798 | ... | ... | ... | N W | Moderate | ... | Cumuli. |
| | 4th | 10 | 29.730 | ... | ... | ... | W | Moderate | ... | Strati. |
| | | 10 | 29.608 | ... | ... | ... | W | Light | ... | Strati. |
| | 5th | 10 | 29.714 | ... | ... | ... | W | Light | ... | Strati. |
| | | 10 | 29.807 | ... | ... | ... | W | Light | ... | Strati. |
| ROCKERS. | 6th | 10 | 29.503 | ... | ... | ... | W | ... | ... | ... |
| | | 10 | 29.583 | ... | ... | ... | W | ... | ... | ... |
| | 7th | 10 | 29.021 | ... | ... | ... | W | ... | ... | ... |
| | | 10 | 29.506 | ... | ... | ... | W | ... | ... | ... |
| | 1st | 9-30 | 29.128 | 74 | 66 | 63 | S | ... | ... | Very slight rain at 4 hours. |
| | | 10 | 29.104 | 70 | 64 | 70 | E | ... | ... | Overcast sky all morning; drizzling rain from 11 hours to 4 hours. |
| | 2nd | 9-30 | 29.181 | 79 | 64 | 40 | S W | ... | 0.07 | Bright clear morning; S. W. breeze getting stronger towards noon. |
| | | 10 | 29.043 | 82 | 60 | 20 | S W | ... | ... | Brisk, N. W. wind all day till 12 hours. |
| | 3rd | 9-30 | 29.008 | 78 | 64 | 43 | N W | ... | ... | Bright day, but many cumuli all round. |
| | | 10 | 29.034 | 84 | 63 | 26 | N W | ... | ... | ... |
| DARFING. | 4th | 9-30 | 29.070 | 78 | 64 | 43 | S W | ... | ... | ... |
| | | 10 | 29.058 | 84 | 63 | 23 | N W | ... | ... | ... |
| | 5th | 9-30 | 29.136 | 82 | 63 | 29 | Calm | ... | ... | ... |
| | | 10 | 29.053 | 87 | 61 | 22 | N W | ... | ... | ... |
| | 6th | 9-30 | 29.001 | 83 | 67 | 43 | S | ... | ... | ... |
| | | 10 | 29.081 | 93 | 69 | 24 | Calm | ... | ... | ... |
| | 7th | 9-30 | 29.073 | 86 | 66 | 29 | S E | ... | ... | ... |
| | | 10 | 29.001 | 93 | 69 | 30 | W | ... | ... | ... |
| | 1st | 9-30 | 29.367 | 59 | 50 | 48 | S E | Light | 0.26 | Clear, delightful morning. |
| | | 10 | 29.313 | 64 | 53 | 48 | S W | Light | ... | A few thin clouds only. |
| DARFING. | 2nd | 9-30 | 29.306 | 69 | 53 | 54 | W | Light | ... | Clear, delightful morning. |
| | | 10 | 29.230 | 66 | 53 | 60 | W | Moderate | ... | Cumuli round horizon, red clear. |
| | 3rd | 9-30 | 29.250 | 55 | 53 | 60 | S E | Light | ... | Slight cirrus, agreeable morning. |
| | | 10 | 29.174 | 68 | 53 | 61 | W | Moderate | ... | Cumuli round horizon, red clear. |
| | 4th | 9-30 | 29.006 | 59 | 44 | 70 | E | Light | ... | Clear, delightful morning. |
| | | 10 | 29.267 | 66 | 53 | 59 | S W | Light | ... | A few thin clouds. Very low horizon. |
| | 5th | 9-30 | 29.306 | 54 | 40 | 73 | E | Light | ... | Cumuli round horizon, red clear, agreeable morning. |
| | | 10 | 29.236 | 44 | 43 | 61 | W | Moderate | 0.4 | Rather misty. A sharp shower of rain with cumuli between 13 and 16 hours. |
| | 6th | 9-30 | 29.108 | 49 | 48 | 78 | S E | Light | 0.13 | Cirrocumuli. |
| | | 10 | 29.267 | 52 | 49 | 79 | W | Light | ... | Bather misty. |
| DARFING. | 7th | 9-30 | 29.313 | 62 | 51 | 86 | N W | Light | ... | Misty. |
| | | 10 | 29.237 | 61 | 53 | 85 | W | Light | ... | Scattered cumuli. |

Velocity in miles per hour.

* Accompanied with heavy rain, very severe lightning and thunder lasted for half an hour.

| STATION. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. H. 100. | WIND. | | Rain. | WEATHER. |
|-------------|--------|--------------|---------------------------|--------------|----------|-----------------------|------------|-------------------|-------|---|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| Dacca. | 1st | 9-30 18 | 29.841 29.801 | 84 87 | 77 77 | 71 61 | SSW SSW | Moderate Fresh | ... | Clear. Cloudy, threatening since noon, thunder N. W. at 14-15. |
| | 2nd | 9-30 18 | 29.831 29.783 | 81 81 | 79 77 | 70 71 | SSW SE | Light Light | ... | Cloudy. Partially cloudy, thunder and lightning N. E. at 13-15. |
| | 3rd | 9-30 18 | 29.834 29.713 | 83 87 | 74 74 | 71 44 | SSW WNW | Light Light | ... | Cloudy. Partially cloudy. |
| | 4th | 9-30 18 | 29.859 29.719 | 85 80 | 71 70 | 47 33 | SSW WNW | Light Light | ... | Clear. Partially cloudy. |
| | 5th | 9-30 18 | 29.975 29.900 | 75 77 | 70 71 | 70 73 | NNB N | Light Light | ... | Light rain, rain early this morning not measurable. Light rain nearly all day with severe thunder and lightning. |
| | 6th | 9-30 18 | 29.880 29.873 | 77 80 | 73 73 | 77 78 | ENE NNW | Light Light | ... | Clear. Ditto. |
| | 7th | 9-30 18 | 29.863 29.715 | 80 83 | 77 77 | 84 75 | SE ESE | Light Light | ... | Cloudy. Threatening. |
| | 1st | 9-30 8-30 | 29.753 29.808 | 80 85 | 84 84 | 34 21 | SW NW | ... | ... | Camelias budding across at North. |
| | 2nd | 9-30 8-30 | 29.801 29.810 | 77 80 | 87 71 | 58 37 | SW W | ... | ... | Great blast from W. at 2 A. M. Heavy thunder storm at 5 A. M. |
| | 3rd | 9-30 8-30 | 29.702 29.515 | 80 80 | 81 83 | 14 19 | W NW | ... | ... | Colder and pleasant. |
| Patna. | 4th | 9-30 8-30 | 29.714 29.604 | 84 83 | 81 87 | 17 20 | WNW WNW | ... | ... | Rain impending. |
| | 5th | 9-30 8-30 | 29.723 29.639 | 83 80 | 87 84 | 21 29 | W NW | ... | ... | A thunder storm at 4 A. M. with a sprinkle of rain. |
| | 6th | 9-30 8-30 | 29.604 29.607 | 82 81 | 87 71 | 43 38 | E NNW | ... | ... | A pleasant day. |
| | 7th | 9-30 8-30 | 29.615 29.631 | 83 82 | 71 73 | 29 37 | E SE | ... | ... | Wind East all day. |
| | 1st | 10 18 | 29.826 29.816 | 87 85 | 73 84 | 48 74 | ... | ... | ... | At 10 A. M. a few drops of rain. |
| | 2nd | 10 18 | 29.803 29.642 | 78 80 | 80 80 | 81 88 | ... | ... | ... | |
| | 3rd | 10 18 | 29.753 29.606 | 85 81 | 70 81 | 44 63 | ... | ... | ... | |
| | 4th | 10 18 | 29.703 29.659 | 83 80 | 75 74 | 40 46 | ... | ... | ... | |
| | 5th | 10 18 | 29.704 29.617 | 80 81 | 74 87 | 83 86 | ... | ... | ... | |
| | 6th | 10 18 | 29.778 29.661 | 81 80 | 78 85 | 81 80 | ... | ... | ... | |
| Pahar Poot. | 7th | 10 18 | 29.739 29.671 | 82 80 | 73 67 | 80 60 | ... | ... | ... | |
| | March | | | | | | | | | |
| | 29th | 9-30 18 | 29.831 29.731 | 81 85 | 80 80 | 83 79 | SW SW | ... | ... | Moderate breezes and hazy. Ditto weather and ditto. |
| | 30th | 9-30 18 | 29.812 29.762 | 81 81 | 79 70 | 83 70 | NW SW | ... | ... | Ditto breezes. Strong ditto. |
| | 31st | 9-30 18 | 29.903 29.813 | 83 84 | 76 73 | 78 75 | W SW | ... | ... | Light wind and very hazy. A heavy S. S. W. squall with small rain at 1 A. M. Light weather. |
| | April | | | | | | | | | |
| | 1st | 9-30 18 | 29.873 29.841 | 80 81 | 76 80 | 83 83 | SW SW | ... | ... | Strong breezes, hazy. Ditto weather and ditto. |
| | 2nd | 9-30 18 | 29.908 29.778 | 85 86 | 81 82 | 87 83 | SW SW | ... | ... | No quite breezes. Strong breeze and hazy. A heavy N. E. squall with thunder lightning and at 10 hours. |
| | 3rd | 9-30 18 | 29.814 29.710 | 83 85 | 79 74 | 78 71 | WSW SW | ... | ... | Light weather. Ditto ditto. |
| | 4th | 9-30 18 | 29.841 29.730 | 84 85 | 74 79 | 71 75 | SW SW | ... | ... | Moderate breeze. Strong ditto and fine. |

BENGAL SECRETARIAT,
The 17th April 1868.

HENRY F. BLANFORD,
Meteorological Reporter to Govt. of Bengal.

Abstract of corrected Observations as received in the Meteorological Reporter's Office.
FEBRUARY 1868.

HOURS OF OBSERVATION 10 AND 16.

N. B.—The Barometric data are read near for temperature, not for height, above sea level: Dew-point is calculated by Gayot's Tables.

| STATIONS. | 10 Hours. | | | | | | 16 Hours. | | | | | | MEANS FOR THE MONTH. | | | | | | Rain. Inch. 0.18 p 6.21 Nil 0.60 1.35 0.03 4.80 1.53 Nil° 2.03 4.41 | | | | |
|---------------|------------|-------|------------|-------|-----------|-------|------------|-------|-----------|-------|-----------|-------|----------------------|------|--------|------------|--------------------------|-----------|--|-----|-----|-----|-----|
| | Max. Ther. | Date. | Min. Ther. | Date. | Max. Bar. | Date. | Max. Ther. | Date. | Min. Bar. | Date. | Max. Bar. | Date. | Barometer. | Dry. | Wet. | Dew-point. | Elastic force of Vapour. | Humidity. | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Calcutta | 81° | 23rd | 65° | 3rd | 30.155 | 9th | 29.772 | 24th | 87° | 22nd | 69° | 3rd | 30.022 | 15th | 29.694 | 24th | 29.903 | 77° | 60° | 58° | 504 | 54 | |
| Saugor Island | 80° | 24th | 66° | 4th | 30.116 | 9th | 29.834 | 24th | 84° | 29th | 63° | 3rd | 29.904 | 15th | 29.703 | 29th | 29.991 | 76° | 70° | 67° | 667 | 73 | |
| Chittagong | 76° | 22nd | 65° | 6th | 30.007 | 16th | 29.749 | 29th | 77° | 25th | 68° | 3rd | 29.943 | 15th | 29.617 | 29th | 29.859 | 72° | 67° | 65° | 619 | 76 | |
| Akyab | 78° | 28th | 67° | 6th | 30.088 | 15th | 29.554 | 29th | 83° | 16th | 75° | 5th | 29.970 | 8th | 29.835 | 28th | 29.933 | 75° | 72° | 67° | 609 | 75 | |
| Cuttack | 82° | 29th | 69° | 5th | 30.173 | 16th | 29.844 | 24th | 89° | 29th | 71° | 7th | 30.059 | 9th | 29.725 | 24th | 30.001 | 78° | 65° | 62° | 572 | 80 | |
| False Point | 83° | 22nd | 65° | 5th | 30.055 | 16th | 29.720 | 24th | 83° | 24th | 70° | 5th | 29.955 | 16th | 29.635 | 24th | 29.894 | 76° | 72° | 70° | 733 | 80 | |
| Madras | 86° | 29th | 80° | 14th | 30.122 | 16th | 29.803 | 25th | 92° | 29th | 80° | 9th | 29.999 | 10th | 29.781 | 24th | 29.962 | 82° | 71° | 68° | 686 | 63 | |
| Dacca | 77° | 22nd | 66° | 8th | 30.061 | 9th | 29.724 | 24th | 75° | 22nd | 63° | 5th | 29.951 | 1st | 29.564 | 24th | 29.716 | 72° | 66° | 62° | 563 | 71 | |
| Darjeeling | 52° | 29th | 36° | 5th | 29.370 | 9th | 29.030 | 24th | 61° | 29th | 34° | 3rd | 29.982 | 8th | 29.003 | 24th | 29.219 | 44° | 42° | 38° | 236 | 82 | |
| Bombay | ... | ... | ... | ... | 29.937 | 9th | 29.611 | 24th | ... | ... | ... | ... | 29.801 | 9th | 29.526 | 23rd | 29.754 | ... | ... | ... | ... | ... | ... |
| Puna | 75° | 21st | 64° | 26th | 29.972 | 8th | 29.584 | 24th | 79° | 22nd | 60° | 3rd | 29.837 | 9th | 29.500 | 23rd | 29.750 | 71° | 63° | 55° | 433 | 56 | |
| Roorkee | 70° | 19th | 50° | 1st | 29.230 | 5th | 28.860 | 24th | 77° | 29th | 59° | 2nd | 29.145 | 8th | 29.804 | 23rd | 29.667 | 63° | 55° | 51° | 376 | 62 | |



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, APRIL 29, 1868.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on a payment of six Rupees per annum if delivered in Calcutta, or twelve Rupees if sent by Post.

Information regarding Australian Coal and Timber.

Circular from COLONEL C. H. DICKENS, R. A., Secretary to the Government of India, Public Works Department, Railway Branch,—(No. 8, dated the 16th April 1868.)

The accompanying copies of papers referring to

Government of Madras.
Bombay.
Bengal.
North-Western Provinces.
Punjab.
Chief Commissioner, Central Provinces.
Oudh.
British Burmah.
Commissioner of Mysore.
Resident at Hyderabad.
Agent, Governor General, Central India.
Rajpootana.
Home Department.
Military Department (Marine).

Australian coal and other matters, received from Captain de Bourbel, R. E., Superintending Engineer on leave, are circulated for information to the

Governments, Administrations and Departments noted in the margin.

Enclosure to Circular No. 8, Railway.

From CAPTAIN R. DEBOURBEL, Superintending Engineer, on leave, to the Secretary to the Government of India, Public Works Department,—(dated the 18th October 1867.)

DURING my short stay in Australia, I picked up some information about the coal and timber of New South Wales, and send you the papers enclosed.

The best coals from Newcastle, a Port at the mouth of the River Hunter, seven hours' steam north of Sydney, are said to equal the average of English North Country coals for steam-raising purposes, but are inferior to Welsh coal.

In Australia, for marine engines, Newcastle coal is preferred; but for locomotive engines, half of Newcastle and half of Bellambi coal is used.

This latter coal is said to be the better fuel, but cokes, and gives much more trouble to the firemen.

Bellambi is situated in the Illawarra District, another coal-field five hours' steam south from Sydney; this coal is also cheaper than Newcastle coal, 7s. 6d. against 9s. 3d. per ton shipped.

There is, however, no good harbour for large ships along the Illawarra Coast, and the trade is now carried on by small coasters. An harbour is being made at Wollongong, the Capital of this District, but it will not be finished for some time: the entrance, too, hardly seemed to me safe for large vessels in bad weather, and practically Newcastle coal will, for some time to come, be the only Australian coal available for export to India and China.

Newcastle has a fair harbour and large wharf fitted with steam-cranes, along which ten large ships can load or unload at one time, and connected by rail or tramway with the various coal-mines in this neighbourhood. The entrance to this harbour is also difficult in bad weather, as may be seen from the accompanying Circular of Messrs. Charles F. Stokes and Co., the shipping Agents at Newcastle, from whom much of my information regarding price of freight, &c., is derived.

The price of the best Newcastle coal delivered at Bombay would vary from 36s. to 46s. per ton in ordinary times, all charges included, except cost of landing at Bombay; and if, as I believe, the price at Bombay of English North Country coal exceeds this figure (say from 50s. to 60s. per ton), the question of importing Australian coal in preference to English and Scotch coals (not Welsh) for marine, stationary, and locomotive engines, is worth considering.

Of the Newcastle coals, those from the Wallsend and Minimi mines gave the most favourable results in the trials made in England; but at Newcastle, the Lambton, Warrah, and Australian agricultural coals are much esteemed, while the

Four-Mile Creek coal, further inland, is said to be of superior quality, and as they all come from the same field, there is probably not much difference between them when tried on the spot. As some kinds of coal may, however, deteriorate more than others by a long sea voyage, I should not be inclined to accept the results of the experiments made in England or in Australia as final for India, and would suggest that a cargo of samples from the various mines at work at or near Newcastle be sent to Bombay, and be there tried and compared with English, Scotch, Welsh, and Indian coals.

The present course of trade is for ships to bring out cargo from England to the large Sea-ports of Australia; take ballast, coal, or timber to India or China, and thence take cargo back to England.

The shipping arrangements for coal could be made either in London or at Newcastle; the former would ensure more regularity in the supply from Australia to India.

The Peninsula and Oriental Steam Navigation Company, and the British India Steam Navigation Company, are said to have commenced using Australian coal in the Indian Ocean and China Seas, and some appears to have been sent to the Bombay and Baroda Railway.

Mr. Thomas' report may be relied upon, and should you have it printed, may I ask you to send six copies to him at the Railway Engineer's Office, Sydney, New South Wales.

I showed these papers to Captain Nasmyth, n. e. from Bombay, whom I met in Sydney, and he has taken copies to send to General Rivers, the Agent for the Great Indian Peninsula Railway.

Should anything like a steady demand for Australian coal set in in any part of India for any purposes, such as Railways, in which the Government is immediately interested, the latter should insist upon the Railway Companies having an experienced and trustworthy Engineer Agent resident at Newcastle, to see in person that the coal shipped was clean and screened, and of the desired quality.

About timber for sleepers, the kinds preferred on the Railways in New South Wales are iron-bark and box, though stringy bark and gum are used, where the former are scarce, or of inferior quality.

The peculiarity of these Australian woods is, that the trees are evergreen, and shed their bark annually; and the wood being close-grained, and of great density and hardness, it takes several years to season properly.

Most of the wood is, therefore, unseasoned when used, and sleepers put down in this state are said to last twelve years if of iron-bark and box; and nine years if of stringy bark and gum. All these four woods are liable to be attacked by whiteants.

There is a remarkable difference in the quality of these woods when grown on various soils, and local knowledge is necessary to determine whether the growth of any particular forest is suited for Railway sleepers or not. Speaking generally, iron-bark and box-wood are the best timber available; but in parts of the same district, their quality is inferior and unfit for Railway sleepers. A trustworthy Agent, resident on the spot, would be necessary to examine, test, and select in person the timber offered for sleepers, if a regular supply of the latter be exported annually from Australia to India.

The extract of Colonel Ward's report shows the elasticity and strength of these woods; the figures in each line are the mean results of three or four trials of the same wood, and each piece tried was 4 feet long between bearings, and 2 inches square.

Sleepers could at present be exported in large ships from Sydney, Newcastle, and Brisbane, whence Railways and rivers extend to some distance into the interior; small Coasters might also bring sleepers to these Ports from the other outlets on the coast where timber is procurable.

The present price of sleepers delivered at these Ports is from 3s to 4s each for sound timber, 10' x 10" x 5", but under the strict system of selection which would be absolutely necessary, may be expected to increase to as much as 4s to 5s each.

Taking eight sleepers to the ton, the cost of this Australian timber at Bombay, Madras, or Calcutta, would be from 62s to 75s per ton, including all charges, except cost of landing at Port of delivery, and price of each sleeper would then be from 8s to 9s 6d each.

The Local Government may possibly levy some duty on sleepers thus exported, and the price of timber is also liable to further increase from the large demand for timber and sleepers on Australian Railways, gold-fields and mines. In Tasmania some good woods for Railway sleepers abound in the large forests on the Western Coast, but large ships would hardly go to a place so far out of the regular channel of trade. In New Zealand also there are extensive and thick forests of fine timber along the Western Coast, where the gold-fields have been recently discovered, but there is no good harbour yet known along this shore.

GOVERNMENT RAILWAYS.

OFFICE OF ENGINEER FOR EXISTING LINES.

Sydney, 18th September 1867.

Seeing how little is generally known of the Coal-producing resources of this Colony, it will, perhaps, not be considered out of place before proceeding with the more immediate object of this report, viz., as to which quality of Australian coal is found best suited for locomotive purposes, if I give an abridgement of an account given of the collieries of New South Wales by Mr. William Keene.

"The Australian Agricultural Company's Mine, known as the Borehole Colliery.—The seam is 168 feet from the surface, and 150 feet below the sea-level; its greatest thickness about nine feet, with average dip to the south-east of 1 in 20. This coal is greatly esteemed in Melbourne and Californian markets. Ships of large tonnage can load at the staiths of the Company; to which the coal is taken from the pits' mouth by locomotives, a distance of about two miles.

The same Company have also another pit (situated on the hill-side at Newcastle, and in which, at 90 feet below the surface, the coal known as the yard-seam, and visible on the coast at the sea-level, is worked. For many years this was the only coal wrought by the Australian Agricultural Company. It is rather soft in quality, but esteemed in household purposes, gas manufacture, and blacksmiths' work. These coals are also taken to the wharf by locomotives. The Company frequently ships 500 tons a day.

and can readily supply larger demands,—price 14s. 6d. per ton.

The Newcastle Coal and Copper Company's Colliery, working what is known as the Burwood seam.—This coal is seen in natural section on the cliffs of the sea-coast 60 feet above the sea-level, and has been worked into by day levels in the Burwood Range of Hills near Newcastle. A new drift has just been opened in the hill known as Little Red Head, and the coal is the same seam as that of the Burwood Range. Between the two workings there appears a down throw fault of more than 60 feet.

Section of the Seam.

| | Feet. | Inches. |
|-------------------|-------|---------|
| Top coal | ... 2 | 6 |
| Fine clay parting | ... 0 | 3 |
| Middle coal | ... 2 | 3 |
| Clay band | ... 0 | 2 |
| Bottom coal | ... 3 | 6 |

This coal is easily worked, and carried by locomotives to the shipping wharves of Newcastle at the rate of 500 tons per day,—price 13s. 6d. per ton.

The Wallsend Company's Colliery known as the Fallend Seam.—The coal in this pit is 127 feet from the surface, and 80 feet below the sea-level; 9 feet 10 inches in thickness, including partings which divide the seam into three bands. The partings are together about 10 inches in thickness. The Wallsend workings are situated about half way between Minimi and Newcastle, the strata rising towards the North-West Ranges. The works connect with Newcastle by a branch Railway to join the Great Northern Line at Waratah, about 4 miles from the Port, and the locomotives take coals to the ships' side at the wharf at the rate of 500 tons or more daily,—price 14s. 6d. per ton. This Colliery has not been long opened, and the coal finds favor in the markets of Melbourne and California.

The Minimi Colliery Company's (C) Pit.—The seam is 90 feet from the surface, and 20 feet above the sea-level. An out-crop of the seam is visible in a creek about 400 yards from the shaft, rising in a northerly direction 1 in 18. It appears to be the second seam below the schist rock which covers the Coal and Copper Company's seam at Burwood, and is bedded on a hard sand-stone grit of good building stone. The coal is much liked by the blacksmiths of the District, and the small makes a good coke, as does the small coal of the Collieries of Newcastle generally. Messrs. I. and A. Brown, the owners of these mines, raise about 300 tons a day, which is shipped at Hexham, a township on the banks of the Hunter River, ten miles from Newcastle; or the coal is sent down in barges laden with boxes, which are hoisted by a steam-crane so as to load ships of any tonnage whilst at anchor in the stream. The seam averages 6 feet of clean coal.

The Tomago Company have put down a shaft 363 feet to the coal, the deepest as yet in New South Wales. They first struck a seam 6 feet thick at a depth of 342 feet, but finding a thinner seam of better quality 23 feet lower, they preferred to work this "Long Wall," and they supply from 100 to 150 tons daily of what is esteemed a good furnace coal. The pit is on a

level at a distance of only 700 yards from the river bank where vessels of 200 tons can take in their load. The Company has lately been reorganized, and is preparing for operations on a more extended scale.

This coal is highly bituminous, and remarkable, in common with Borehole and Minimi seam, for its tendency to uniform and orbicular fracture, a peculiarity which seems to belong to the middle seams of the series, the upper and lower seams being more disposed to splintly cleavage, and burning to ash with little cinder.

The Four-Mile Creek Company, Messrs. Christian, Nixon & Co., carries on its operations in the East Maitland District, and that worked is 8 feet 6 inches in thickness, 5 feet 6 inches of which is a splint coal of a very superior quality, chiefly used by the two lines of steamers navigating daily between Morpeth and Sydney.

The admirable regularity with which these ocean steamers perform their service, their engines of 160 horse-power easily kept to the top of their speed with steam to spare and blowing at the valve, give sufficient and constant evidence of the excellence of the coal; in fact, I have long considered, and often expressed the opinion, that good clean hand-picked New South Wales coal is at least equal, if not preferable, to the best coals of England, when these latter have been twice transhipped; that is to say, in the state in which English coal can alone be got in Sydney, and at double the price of the best produce of our own mines. The Four-Mile Creek is a handsplint coal; does not clinker; and burns to a fine dry ash; is very comparable to the coals shipped from Goole in Yorkshire, whilst our bituminous coals may be likened in quality to the "Heartley."

Descending the strata, and below all the seams of these Collieries at West Maitland, about 5 miles north from Four-Mile Creek, two seams of cannel and splint coal are worked, the property of the Hon'ble Bournie Russell. This cannel coal is most useful, and is chiefly employed for domestic purposes.

Thirty miles further to the northward, at Rix's Creek, near Singleton, a seam of good coal is also worked.

Sixty miles south from Sydney, are the Ports of Bellambi and Wollongong; and though they cannot be compared with accommodation with the Port of Newcastle, the energy of the coal owners of the Districts, and the facility with which coals can be worked by "day levels" from a 7 feet seam which shows itself in section along many miles of the mountain range, assure to this field a progressive development to prove the inexhaustible resources of New South Wales in mineral fuel; and will be a guarantee to commercial interests that no combination of monopoly can long disturb the regularity of the supply.

At Bellambi, vessels load from a jetty the coals brought down the mountain side along a tramway to the ship, and from 100 to 200 tons are thus sent away daily.

At Wollongong there is a like arrangement for the Mount Keira Mine, and like quantities are shipped from that Port.

There is a "day level" worked by a morning party between Mr. Hales' Bellambi Mine and Mount Keira. A drift is also making into the seam 4 miles south of Dapto, and more than 20 miles south from Mr. Hales; whilst 5 miles north

From Mr. Hales' a tramway is in course of construction to Bellambi for a Company about to be incorporated by Act of the New South Wales Parliament, and named the Bulli and Bellambi Coal Mining Company.

I have examined all these new drifts, both at the extreme north and south points at which the seam has hitherto been opened at heights varying from 500 to 600 feet above the level of the sea at a distance of at least 25 miles from each other, and can say that the coals appear equally good with those from the drifts in work, all upon the same seam, and shewing a great regularity of thickness of about 7 feet.

Besides this, and 15 miles nearer to Sydney, at Coal Cliff, I found a seam at the level of low-water, 6 feet in thickness, very like to the splint coal of Four-Mile Creek, and this seam will probably, from its apparent good quality, soon be worked.

Since the year 1856, the trade of the old Companies has nearly doubled, whilst new Companies have started into existence, and the extraction and sales of these latter are now equal to what the old Companies were doing five years ago.

On the lands of the Agricultural Company a few miles from Stroud, a seam more than 30 feet in thickness crops out in the length of a creek, and this thickness has been verified by several trial pits sunk on the dip side. There are many partings of shale and fire clay, and the coal is of various quality in the thickness of the seam, but there is quite sufficient of good coal for profitable working, if its inland position did not render it wholly unavailable in the face of coal so easily accessible from the sea-board as that of Newcastle and Wollongong.

With regard to the relative heating powers of British and Colonial coals; from some very careful experiments conducted on a large scale in the Colony, the ascertained mean value of 16 trials of different Welsh coal, 16 of English, 16 of Scotch, and 6 of Colonial coal, are as follows:—

| | Mean. | Highest. | Lowest. |
|---------------------|---------|----------|---------|
| Welsh | ... 8.9 | 10.2 | 7.4 |
| Colonial | ... 7.9 | 8.4 | 7.4 |
| English (Newcastle) | ... 7.8 | 8.3 | 6.7 |
| Scotch | ... 7.3 | 8.4 | 5.8 |

By this it will be seen that the Colonial coal is inferior only to that from the most famous Welsh Collieries. The Colonial coal in each of these experiments was 15 cwt., and gave as the average water evaporated 253, 348.3 cubic inches.

Weight of water evaporated by 1 lb of coal, including getting up steam to the determined pressure ... 5.4

Economical value of weight of water evaporated by 1 lb of coal after steam being raised to the determined pressure. ... 7.3
Water evaporated ... 9137

Rate of evaporation in gallons at 6 lbs above atmospheric pressure per hour ... 218.7 gallons.

Rate of combustion per hour per square foot of fire grate ... 11.8

Weight of coal per cubic foot ... 53.3

Mr. Anderson, Inspector of Machinery to the War Department, also made some experiments, but on a smaller scale, at Woolwich with Australian and other coals, and the following Table shews at a glance the relative value of the several coals operated upon:—

| Number of revolutions made by Steam Engine. | lbs. | Weight of water evaporated by 1 lb coal. | Water evaporated in cubic inches. | Weight of ashes. | Duration of experiment. | Weight of Coal. | Name of Coal. | Date. | Number of experiment. |
|---|------|--|-----------------------------------|------------------|-------------------------|-----------------|---------------|-------|-----------------------|
| 3,050 | 7.4 | | 45,780.5 | 13.4 | 5.20 | 20 | Australian. | 18 | 1 |
| 3,946 | 7.4 | | 45,780.5 | 13.4 | 5.20 | 20 | Do. | 18 | 2 |
| 3,970 | 7.4 | | 45,780.5 | 13 | 5.12 | 20 | Whitworth. | 22 | 3 |
| 4,000 | 7.4 | | 45,780.5 | 13.4 | 5.10 | 20 | Do. | 22 | 4 |
| 4,367 | 8.6 | | 50,621.5 | 5 | 5.30 | 20 | Welsh. | 23 | 5 |
| 4,315 | 8.6 | | 50,621.7 | 4.7 | 5.30 | 20 | Do. | 23 | 6 |
| 4,280 | 8.9 | | 49,636.5 | 3.1 | 5.25 | 20 | Hartley. | 24 | 7 |
| 4,109 | 7.8 | | 48,654.0 | 3.7 | 5.17 | 20 | Do. | 24 | 8 |

It will be seen that these experiments in England bear out those on a larger scale in the Colony, and that, therefore, for steam purposes, the Australian coal may be considered about equal to the Newcastle coal termed "Whitworth," but that it is slightly inferior to the Hartley and Welsh varieties of English coal. The last column of the Table shews exactly the relative value of the different experiments, and the true value of the several coals for steam-engine purposes.

Attached to Mr. Anderson's report was the following analysis made by Mr. Abel, the Chemist to the War Department:—

"The coal was found to contain a very considerable admixture of shale. Very thin seams of iron pyrites were observed to be interspersed through the massive portions of the coal itself.

"An average sample of the coal, as supplied was prepared, and the following points determined with it:—

1.—“The quantity of volatile matter furnished by the coal, amounted to 71 per cent., and 29 per cent. of a light and very porous coke was obtained. The coal is, therefore, of a highly bituminous character, and would probably be found excellently adapted for the manufacture of gas.

2.—“The percentage of ash contained in this average sample of coal amounted to 6·8 per cent. The ash was of a red brown colour, due to the oxide of iron produced from the pyrites in the coal.”

A massive piece of the coal was selected for a special determination of the ash, and was found to furnish 4·09 per cent. The coal therefore, yields, even when free from shale, a quantity of ash unusually large for bituminous coal.

3.—“The percentage of sulphur found in the average sample amounted to 1·11, a quantity slightly exceeding that usually found in Newcastle coal, but which cannot be looked upon as considerable when compared with the large amount of ash furnished by this coal.”

More recent experiments at the Royal Arsenal have thus been summarised by the Government Examiner of Coal-fields, New South Wales :—

1st.—“The Woolwich boiler, which with average English North Country coal evaporated at the rate of 47 cubic feet of water per hour, with average Australian coal evaporated 46½ cubic feet.

2nd.—“One pound of English North Country coal evaporated 8·25lbs of water; and 1lb of Australian coal evaporated 8·25lbs.

3rd.—“The average of English coal gives 1 per cent. of clinker; the Australian 2·11 per cent.

4th.—“Of ash, the average of English coal is 4 per cent. against 7·15 per cent. for Australian; and is stated to give 5 per cent., whilst the Australian leaves 9½ per cent.

5th.—“The average Australian coal excels average English North Country coal in power of evaporation, for 1lb of the former evaporates more water than a lb of the latter, and in time the difference is insignificant.

The quantity of the residue to be thrown away as of little consequence when the evaporation power of the coal is nearly equal.

The English coal used in these experiments may be fairly assumed as having attained its highest average, whilst the coal of Australia is an improving average.

The following Return will give the approximate relative value for locomotive purposes of the coals from the Northern Collieries :—

| Description of Coals. | Number of days running. | Average load of waggon, car, ringer, &c., per day. | Quantity of Coal consumed. | | Number of miles run. | Weight in lbs. per mile. | Wood used Lighting Fires. | |
|-------------------------|-------------------------|--|----------------------------|----------------|----------------------|--------------------------|---------------------------|----------------|
| | | | Tons. | cwt. qrs. lbs. | | | Tons. | cwt. qrs. lbs. |
| Minimi Coals | 7 | 9 | 10 | 10 0 0 | 1,096 | 21·459 | 2 | 0 0 0 |
| Coal and Copper Co. ... | 6 | 10 | 10 | 0 0 0 | 612 | 34·830 | 1 | 0 0 0 |
| Aus. Agl. Co. | 6 | 10 | 10 | 0 0 0 | 835 | 20·91 | 1 | 5 0 0 |
| Wallend Co. | 9 | 12 | 11 | 3 0 0 | 1,181 | 21·094 | 1 | 10 0 0 |

With regard to the qualities of the northern and southern coal for steam-raising purposes, I may state that both in marine, stationary, and locomotive engines, the latter has been found the best; that is to say, *ceteris paribus*, a lb of Wool-longong coal will raise more steam than that of a like quantity from the Newcastle Collieries.

The following reports which have been published will, I think, fully bear out this assertion, as the trials were not mere experiments conducted in a laboratory, but conducted upon a sufficiently large scale to practically test the coal.

CITY ENGINEER'S OFFICE.

Sydney, 4th July 1861.

From—EDWARD BELL, Esq., City Engineer,

To—The Right Worshipful the Mayor.

In accordance with the instructions of the Water Committee to furnish a three months' comparative return of Newcastle and Bellambi coal at the Botany Water-works, I have the honor to state that I have selected periods at which the coals were weighed into the furnaces, and the sum of which weighing corresponded

within a fraction with the weight on the ships' certificate; and the following are the results which I have the honor to return, namely:—

From the 1st April to 30th June 1860, the coal used was Newcastle coal and Copper Company's and Minimi—

Coal consumed in raising steam
was ... 163,800 lbs.
Coal consumed whilst pumping
water ... 654,050 „
Number of gallons pumped 135
feet high ... 72,763,803 „

Number of gallons pumped 226 feet high, with
654,050 lbs. of coal 3,544,680, which is equal to
16,244 gallons of water pumped, 1 foot high with
1lb of coal.

Bellambi Coal,—

From 1st January to 31st March 1861—
Coal consumed in raising steam 174,937 lbs.

Ditto in pumping water 544,861 „
Number of gallons pumped 135
feet high, was ... 80,804,494

Number of gallons pumped 226
feet high, was ... 4,866,240

With 544,861 lbs. of coal, which
is equal to ... 21,838 gallons
of water raised one foot with one lb of coal.

“The Newcastle coal made a considerable quantity of clinker and ash. The Bellambi coal no clinker, and a small quantity of white ash.”

Dated 28th June 1861.

From—J. H. THOMAS, Esq.,

To—The Right Worshipful the Mayor.

In reply to your enquiry as to which I had found to be the most suitable class of coal for the locomotives on the Railways of this Colony, I have to state that after a series of experiments, the coal from the mines of Bellambi was proved to be far superior to any other as a fuel, both as regards its steam-raising qualities and perfect freedom from clinker.

I may also mention that it is better adapted for the smoke-consuming apparatus we employ.

Dated 1st August 1861.

From—H. WOOLLEY, Senior Engineer,

To—Commander of Her Majesty's Ship “Cordelia.”

In accordance with your instructions to report on the qualities of Bellambi coal, I have the honour to inform you of the following trial of this kind of coal made on Her Majesty's ship under your command:—

“Quantity of coal consumed ... 98 tons.

“Consumed per horse-power ... 1,344 lbs.

“Indicated horse-power ... 228.6 horse.”

Consumed per indicated horse-power per hour
58lbs which is equal to 336,776.7lbs. raised one
foot high, or 33,677.6 gallons of water pumped
one foot high with 1lb of coal.

“The Bellambi coal makes very little smoke, or soot, in comparison with other kinds of Australian coal, no clinker of any consequence; but compared with English coal, it produces rather a larger quantity of dust and ash.

“Altogether it is superior to any kind of Australian coal yet tried on board Her Majesty Ship Cordelia.

Although Mr. Bell's report exhibits a difference of some 30 per cent. in favor of Bellambi (Southern) coal, yet it is but fair to state that one of the Northern coals used was of an inferior colliery, as will be seen by the return of the trials of Newcastle coal on the Northern Railway given above.

I may add to the foregoing reports a trial made in one of our locomotives on the Great Northern Railway.

| DESCRIPTION OF COAL. | No. of Engines | No of days running. | No. of Miles run. | Quantity of coals used. | Quantity of fuel used per mile. | Coal per mile in lbs. |
|----------------------|----------------|---------------------|-------------------|-------------------------|---------------------------------|-----------------------|
| Wollongong | 9 | 35 | 1,798 | 387 | 116 | 21.34 |
| Newcastle | 9 | 15 | 1,740 | 400 | 123 | 25.74 |

The Wollongong coal is of rather slow combustion, and requires a strong blast; it is not generally liked by the fire men, as it gives them a little more trouble, whereas the Newcastle burns freely and requires less attendance to the fires. We are at present using an equal quantity of each, the contract just entered upon with the Government being at the following rates to be delivered at the Railway Wharf at Sydney:—

s. d.
Wollongong ... 13 6 per ton.
Newcastle ... 15 0 „

At the present time, owing to the keen competition, the price of coal is very low, and at Newcastle is now being put on board at 9s. 3d. per ton.

J. H. THOMAS, C. S.,

Chief Engr. for Existing Lines,
and Locomotive Supd.

EXPORT OF COAL FROM NEWCASTLE, NEW SOUTH WALES, FROM 1ST JANUARY TO 21ST AUGUST 1867.

To Foreign Ports.

CHINA—

| | Tons. | Tons. |
|----------|-------|--------|
| Shanghai | 7,622 | |
| Hongkong | 8,603 | |
| Cheefoo | 1,553 | |
| Ningpo | 372 | |
| Foochow | 530 | |
| | | 18,680 |

JAVA—

| | | |
|----------|-------|-------|
| Macassar | 1,257 | |
| Java | 8,115 | |
| Batavia | 1,500 | |
| | | 5,872 |

INDIA—

| | | |
|----------------|-------|--------|
| Bombay | 4,788 | |
| Calcutta | 1,800 | |
| Colombo | 225 | |
| Kurrachee | 1,370 | |
| Point de Galle | 5,175 | |
| Singapore | 830 | |
| Manilla | 1,240 | |
| | | 15,428 |

| | | | |
|----------------|-----|-----|--------|
| Banda | ... | ... | 387 |
| SAN FRANCISCO | ... | ... | 12,796 |
| VALPARAISO | ... | ... | 1,300 |
| CALLAO | ... | ... | 726 |
| CHILLI | ... | ... | 602 |
| GUAN | ... | ... | 1,420 |
| RIO DE JANEIRO | ... | ... | 194 |
| MAURITIUS | .. | .. | 2,898 |
| Total | ... | ... | 60,803 |

| | | |
|--------------------------------------|-----|--------|
| Shipped by Wallsend Company | ... | 28,949 |
| " by Australian Agricultural Company | ... | 9,994 |
| " by Waralah Company | .. | 8,399 |
| " by Lambton Company | ... | 8,118 |
| " by Co-operative Company | ... | 5,238 |
| " by Minimi Company | ... | 3,665 |
| Total | ... | 60,803 |

The export to Inter-colonial Ports to 31st July 1867

| | | |
|------------|-----|---------|
| Amounts to | ... | 186,162 |
| Coast-wise | ... | 115,902 |
| Foreign | ... | 55,898 |

Total export to 31st July 1867 ... 357,957

Dated 9th September, 1867.

Extract from report from E. B. CARROLL, Esq., Superintendent of Bombay and Baroda Railway, upon Newcastle Coal from the Waralah Mine worked comparatively with English Coal.

| | Consumption per Vehicle per mile in lbs. | Percentage of ash. | Percentage of Clinker. |
|------------|--|--------------------|------------------------|
| English | 1.55 | 7.72 | 1.01 |
| Australian | 1.27 | 8.13 | .98 |

Mr. Carroll recommends the Australian coal as preferable to any other.

The rate of freight to Bombay from Newcastle during 1866 was from Rs. 20 to Rs. 28.

For 1867 to present time, from Rs. 30 to Rs. 35.

The rate of freight for remainder of year may be taken at Rs. 35.

1866. Cost of coal at Bombay, including, Commission, Insurance and all charges, say ... Rs. 30 to Rs. 38 per ton.

1867. Cost of coal at Bombay, including, Commission, Insurance and all charges, say ... " 40 to " 46 "

Price of coal at Newcastle, Rs. 9.3 per ton.

Price of best iron-bark sleepers 10 x 10 x 5, Rs. 2-9 to Rs. 3; this is the cost price at which the last contract was taken from the Splitlers.

Extract from Colonel Ward's (R. E.) Report on experiments made at the Sydney Royal Mint, on the elasticity and strength of the Timber of New South Wales and Queensland.

| NAMES OF THE WOODS. | DISTRICT. | DIMENSIONS OF TREE. | | SPECIFIC GRAVITY. | GREATEST WEIGHT AND DEFLECTION WHILE ELASTICITY REMAINED PERFECT. | | ULTIMATE DEFLECTION IN INCHES. | $\frac{1\frac{1}{2} W}{16 d^3}$ | $\frac{1 W}{4 d^2}$ | REMARKS. |
|---|---------------|-------------------------------------|-----------------------------|-------------------|---|-----------------------|--------------------------------|---------------------------------|---------------------|--|
| | | Average height to diameter in feet. | Average diameter in inches. | | Weight in lbs. | Deflection in inches. | | | | |
| Red iron-bark <i>Eucalyptus</i> ... | South | 30 | 30 | 1.167 | 1,505 | 1.33 | 2.45 | 521,300 | 3,051 | Timber hard, close-grained, of excellent quality, great strength and durability. Valuable for ship-building, engineering works, piles, beams, sleepers, but is readily attacked by white-ants. |
| White iron-bark <i>Eucalyptus</i> species ... | South | ... | ... | 1.111 | 1,453 | 1.07 | 1.87 | 587,800 | 2,850 | |
| Iron-bark <i>Eucalyptus</i> ... | South | 40 | 42 | 1.146 | 1,251 | 1.2 | 2.3 | 450,300 | 2,289 | |
| Narrow-leaved iron-bark <i>Eucalyptus</i> ... | North | 29 to 70 | 12 to 36 | 1.119 | 1,400 | 1.13 | 2.07 | 534,300 | 2,688 | |
| Smooth iron-bark <i>Eucalyptus</i> species ... | Queensland | 35 | 25 | 1.176 | 1,456 | 1.04 | 1.91 | 624,800 | 2,898 | Timber of good quality, and valuable for engineering purposes. |
| Rough iron-bark <i>Eucalyptus reticulata</i> ... | Queensland | 35 | 30 | 1.15 | 1,554 | 1.05 | 2.1 | 630,400 | 2,952 | |
| Box <i>Eucalyptus costata</i> ... | South | 30 | 30 | 1.172 | 1,400 | 1.09 | 1.99 | 554,900 | 2,638 | Said to be very useful for purposes where it does not touch the earth. Short stunted timber of great strength and repute for poles, shafts and spokes of wheels. Considered a valuable timber. |
| Grey box <i>Eucalyptus</i> species ... | South | 40 | 23 | .989 | 1,233 | 1.05 | 2.45 | 506,900 | 2,520 | |
| Yellow box <i>Eucalyptus</i> ... | South | 40 | 24 | .877 | 952 | 1.2 | 2.3 | 342,700 | 2,016 | |
| Box <i>Eucalyptus</i> ... | South Albury | 25 | 30 | 1.210 | 1,148 | 1.14 | 2.21 | 435,000 | 2,415 | |
| Bastard box <i>Eucalyptus</i> species ... | North | 10 to 20 | 12 | 1.131 | 1,130 | .98 | 1.43 | 502,100 | 2,100 | This timber is not in much repute. A strong and durable timber. |
| Yellow box <i>Eucalyptus</i> species ... | Mudgee Bridge | ... | ... | 1.063 | 1,036 | 1.30 | 2.51 | 344,300 | 1,932 | |
| White box <i>Eucalyptus</i> ? | Mudgee Bridge | ... | ... | 1.180 | 1,050 | 1.15 | 1.57 | 394,400 | 1,911 | |
| Box <i>Eucalyptus</i> ... | Queensland | 35 | 26 | .977 | 840 | 2.1 | 3 | 172,800 | 1,596 | |
| Bastard box <i>Eucalyptus</i> ... | Queensland | 25 | 27 | .913 | 1,456 | 1.2 | 1.91 | 524,100 | 2,751 | A straight-grained wood, strong and durable. |
| White stringy bark <i>Eucalyptus</i> ... | South | 20 | 26 | .932 | 952 | 1.15 | 2.3 | 357,600 | 2,268 | |
| Red stringy bark <i>Eucalyptus</i> species ... | South | 10 | 24 | 1.031 | 1,031 | .95 | 2.3 | 493,800 | 2,100 | |

| | | | | | | | | | | | |
|--|---------------|----------|----------|-------|-------|-----|-------|-----|---------|-------|---|
| Stringy bark <i>Eucalyptus robusta</i> ... | South Albany | 40 | 30 | 1085 | 893 | 109 | 1,073 | 100 | 355,100 | 1,917 | A most useful timber for building, &c. |
| Stringy bark <i>Eucalyptus robusta</i> ... | North | ... | ... | 903 | 1,023 | 111 | 1,374 | 17 | 387,900 | 1,911 | Superior timber of its kind, but used for building. |
| Stringy bark <i>Eucalyptus robusta</i> ... | Mudgin Bridge | ... | ... | 885 | 1,064 | 118 | 1,325 | 20 | 359,500 | 1,997 | Said to be a valuable timber. |
| Stringy bark <i>Eucalyptus robusta</i> ... | Queensland | 30 | 21 | 977 | 933 | 10 | 1,120 | 14 | 403,000 | 1,680 | Suitable for building. |
| Blue gum <i>Eucalyptus punctata</i> ... | South | 35 | 30 | 1,080 | 781 | 101 | 1,304 | 203 | 335,300 | 1,908 | A valuable timber, hard and tough, with interlocked grain, suitable for ship-building, engineering. |
| Red Gum <i>Eucalyptus oblonga</i> ... | South | 25 | 20 | 1,116 | 953 | 10 | 1,400 | 217 | 411,300 | 2,100 | Timber hard, and of great strength and toughness, has large gum veins, and is not therefore used. |
| White Gum <i>Eucalyptus Haemastoma</i> ... | South | 30 | 28 | 868 | 784 | 90 | 1,008 | 19 | 376,300 | 1,513 | Not valuable. |
| Spotted Gum <i>Eucalyptus Gunncealyx</i> ... | South | 40 | 24 | 943 | 1,106 | 116 | 1,373 | 209 | 411,800 | 2,058 | Timber very strong and durable, fit for ship-building. |
| Forest Gum <i>Eucalyptus</i> ... | South Albany | 25 | 36 | 1,098 | 840 | 123 | 1,064 | 215 | 297,400 | 1,893 | Useful and durable; extensively used for sleepers, posts, rails, scantlings. |
| Grey Gum <i>Eucalyptus speciosa</i> ... | West | 35 | 30 | 1,133 | 1,133 | 111 | 1,128 | 188 | 416,800 | 2,142 | Timber of great strength and durability. |
| White or Silver Gum <i>Eucalyptus pulcherrima</i> ... | West | 60 to 80 | 30 | 968 | 952 | 95 | 1,120 | 138 | 432,800 | 1,680 | A very ugly species. |
| Apple Tree Gum <i>Angophora lucida</i> ... | West | 40 to 60 | 36 | 913 | 803 | 125 | 933 | 187 | 277,400 | 1,399 | Strong and close-grained, suitable for wheel-wrights work. |
| Red Gum <i>Eucalyptus oblonga</i> ... | North | 10 to 60 | 10 to 12 | 1,091 | 924 | 147 | 1,093 | 283 | 271,500 | 1,638 | Generally unsound. |
| Slaty Gum <i>Eucalyptus species</i> ... | Bridge | ... | ... | 1,101 | 1,050 | 137 | 1,374 | 214 | 33,100 | 1,911 | Considered valuable. |
| Blue Gum <i>Eucalyptus punctata</i> ... | Queensland | 45 | 30 | 1,094 | 1,358 | 132 | 1,680 | 235 | 444,400 | 2,526 | Timber not very suitable for Railway purposes. |
| Flooded Gum <i>Eucalyptus species</i> ... | Queensland | 55 | 42 | 752 | 840 | 105 | 1,036 | 216 | 345,600 | 1,554 | Much used for building. |
| Spotted Gum <i>Eucalyptus Gunncealyx</i> ... | Queensland | 25 | 30 | 1,170 | 1,330 | 10 | 1,736 | 203 | 574,500 | 2,604 | Of great strength and durability in dry places, but not prized. |
| Grey Gum <i>Eucalyptus species</i> ... | Queensland | 25 | 30 | 1,148 | 1,064 | 115 | 1,372 | 187 | 398,700 | 2,058 | Strong timber of large growth, but not appreciated. |

| NAMES OF THE WOODS. | DISTRICT. | DIMENSIONS OF TREE. | | SPECIFIC GRAVITY. | GREATEST WEIGHT AND DEFLECTION WHILE ELASTICITY REMAINED PERFECT. | | BREAKING WEIGHT IN lbs. | ULTIMATE DEFLECTION IN INCHES. | $\frac{1}{8} \frac{W}{K} = \frac{16ad}{1000}$ | $\frac{W}{8} = \frac{4ad^3}{1000}$ | REMARKS. |
|---|--------------|-------------------------|-----------------------------|-------------------|---|-----------------------|-------------------------|--------------------------------|---|------------------------------------|---|
| | | Average height to fork. | Average diameter in inches. | | Weight in lbs. | Deflection in inches. | | | | | |
| Peppermint wood <i>Eucalyptus piperita</i> ... | West | ... | ... | .887 | 747 | 1.29 | 840 | 1.83 | 952,100 | 1,260 | Fine and close-grained, strong and durable, will rend if exposed to weather, and difficult to burn. |
| Iron-wood <i>Adenodora</i> ... | Queensland | 15 | 9 | 1.002 | 924 | 1.41 | 1,162 | 2.69 | 283,100 | 1,713 | Timber very hard. |
| Flindersia <i>Flindersia Australis</i> ... | Queensland | 55 | 30 | .986 | 1,023 | 1.14 | 1,315 | 2.25 | 387,300 | 1,974 | Soft, easily worked and durable. |
| White Maple <i>White Maple</i> ... | Queensland | 20 | 21 | .792 | 908 | 1.04 | 1,218 | 2.17 | 401,200 | 1,827 | Strong wood, but of no value for building. |
| White Butt <i>Eucalyptus species</i> ... | South | 30 | 31 | .990 | 1,003 | 1.15 | 1,260 | 1.97 | 378,600 | 1,890 | Close-grained, tough and durable, suitable for building and engineering. |
| Black Butt <i>Eucalyptus</i> ... | South | 35 | 30 | .990 | 980 | 1.36 | 1,233 | 2.92 | 313,600 | 1,848 | Very strong timber, warps and twists when exposed to the sun, and requires gradual seasoning. |
| Woolly Butt <i>Eucalyptus Gomphoccephala</i> ... | South | 20 | 24 | 1.079 | 924 | 1.25 | 1,176 | 1.83 | 311,300 | 1,764 | Used for wheel-wrights' work and fencing. |
| Black Butt <i>Eucalyptus persicifolia</i> ... | Queensland | 45 | 30 | .945 | 1,204 | .95 | 1,484 | 1.49 | 547,500 | 2,220 | Used for posts, rails, piles; supposed not to be durable. |
| Oak <i>Quercus</i> ... | South Albury | 17 | 15 | .936 | 784 | 1.4 | 1,036 | 3.15 | 241,900 | 1,554 | Light and tough, but perishable. |
| Forest Swamp Oak <i>Eucalyptus</i> ... | North | 30 to 50 | 9 | .857 | 1,092 | 1.6 | 1,344 | 2.8 | 294,500 | 2,016 | Ditto |
| Forest of Shingle Oak <i>Casearia suberosa</i> ... | West | 20 to 40 | 18 to 30 | 1.104 | 1,204 | 1.05 | 1,540 | 1.57 | 423,300 | 2,310 | Fine mottled, silver grain of great strength and durability, used for shingles. |
| Swamp Oak <i>Casearia stricta</i> ... | Queensland | 25 | 16 | .940 | 826 | 1.05 | 1,022 | 1.91 | 329,800 | 1,383 | Used for shingles, palings, and durable. |
| River Oak <i>Casearia quadrivalis</i> ... | Queensland | 30 | 18 | .852 | 803 | 1.37 | 1,027 | 3.7 | 253,200 | 1,540 | Strong, light, tough, used for shingles and palings. |
| Green Wattle <i>Acacia decurrens</i> ... | North | ... | 6 | .717 | 1,269 | 1.4 | 1,519 | 2.35 | 391,600 | 2,324 | Shrub timber, close and tough, but of no value. |
| Lignum vitae <i>Acacia</i> ... | Queensland | 9 | 15 | .892 | 1,064 | 1.07 | 1,414 | 1.67 | 429,500 | 2,121 | Used for cabinet-work. |
| Rose Wood <i>Acacia spencer</i> ... | Queensland | 21 | 18 | .712 | 980 | 1.14 | 1,218 | 2.17 | 371,300 | 1,827 | Durable and ornamental. |
| Forest Oak <i>Casearia suberosa</i> ... | Queensland | 15 | 15 | 1.494 | 610 | 1.11 | 1,176 | 2.1 | 351,100 | 1,764 | Used for cabinet-work and shingles. |
| Blood Wood <i>Eucalyptus corymbosa</i> ... | West | 35 to 50 | 8 to 16 | .853 | 1,175 | 1.17 | 1,540 | 2.02 | 431,200 | 2,310 | Qualities not known. |
| Blood Wood <i>Eucalyptus</i> ... | Queensland | 35 | 21 | .983 | 971 | 1.15 | 1,150 | 1.47 | 301,500 | 1,680 | Used for fencing. |

State of the Ganges and Darjeeling Road, &c.

Extract from a Note by H. LEONARD, Esq., C. E., Officiating Chief Engineer, Bengal, on the result of a recent inspection made by him of the Ganges and Darjeeling Road and of the New Hill Cart Road.

Ganges and Darjeeling Road.

15. The Ganges and Darjeeling Road, that is, the road between Caragolahi and Silligoree, is a fine line of communication, well aligned, well made and well metalled throughout: there are only two rivers unbridged on the whole line, the Sowrah and the Mahanuddy, and the former of these is now being done, leaving only the Mahanuddy River to be crossed by a ferry. The whole of the bridges with one or two exceptions are of wood and not of the best materials or workmanship either. They were only intended to stand for seven or eight years: many of them have stood their time already and now shew marked signs of weakness and decay. They may, however, be kept in sufficiently good order until they are replaced by permanent structures; but they will require great attention and thorough good management to keep them from becoming a source of serious inconvenience to the traffic on the road.

16. A good foreman carpenter or an overseer who fully understands carpenter's work should be at once appointed to take charge of them: a central depot should be formed, a stock of timber laid in, and duplicates of all weak portions and of portions likely to fail should be kept ready in stock, so that repairs may be promptly done without closing the bridges. Fortunately the great mass of the bridges is on the 20 or 30 miles of the road north of Purneah, so that one man can superintend the repairs very well. If this matter is not promptly attended to, there will be very great cause for complaints by the mail authorities, and indeed by the public generally. The present means of superintending the work is decidedly insufficient and defective, and the result is bridges closed for weeks, which under proper superintendence and management need not have been closed at all. The Superintending Engineer is alive to these facts: but with no Executive Engineer nearer than Bhangulpore, and no one on the spot who understands the work to be done he is helpless. With the greatest care, however, that can be given to the work, these bridges cannot last much longer, and steps should be taken at once for their renewal year by year in a permanent manner.

17. As the foundations are bad, building materials extremely difficult to procure, and labor scarce, iron will generally be found the best material to use.

18. Sections should be taken of all the present ones, and these, with such information as will enable this Office to indent on England for a large number of simple cheap spans, should be submitted as soon as possible. These spans can be put up in the sites where the present bridges are in the worst state. The waterway at present provided seems to be ample, and it is now clearly defined, so that no uncertainty remains to make one doubt the propriety of putting up permanent structures.

19. The ferry over the Mahanuddy requires considerable improvement. A moderately good semi-permanent road should be kept formed across the sands as the river falls. The present arrangements are not good.

20. The metalling of the road generally is in excellent order, the only exception worth noticing being about 14 miles between the Ganges and Purneah: some of this is decidedly bad now, and if very great energy is not shown in providing metalling, I fear there will be great room for complaint before next rains are over. A good deal of the road is now considerably worn, having been in use for six or seven years, it will be quite as much as can be done to provide metal in time to keep it from becoming bad.

21. A new Division has, however, now been made of which this road forms the principal portion. The Executive Engineer is an excellent and experienced man. The Superintending Engineer is thoroughly alive to the necessity for immediate activity, so I hope all will go on well.

22. On the large portion of the road, which has been metalled with slag, search is being made for more of the same material, and the Overseer reported that there was fair prospect of getting a sufficient supply for present wants at least.

23. The occurrence of this slag in a perfectly flat country, now without a tree almost, without ore or flux or fuel is a curious and, for the completion of the road, a most fortunate occurrence. The preparation of metal to supply the place of the slag used on the 40 or 50 miles which is covered with it would have been an extremely tedious and difficult work.

24. The bridge over the Mahanuddy on the old line of road is being put in good order, it will be finished before the rains set in, and the old road up to the hills is in very good order. I examined the site of the bridge over the Mahanuddy on the new line of road, and am satisfied that that selected by Major Perkins and Colonel Layard is the best in the vicinity. I discussed the question of the class of bridge which should be built there with these Officers, and feel convinced that, as a permanent arrangement, wood is the proper material to use. It is of the finest quality, about one-fourth of the cost of wood in Calcutta, and there is no destroying worm in the river; while, on the other hand, iron at the site would be extremely costly, the length of inland cartage being very great. A really good wooden bridge should last 18 or 20 years without any great outlay, and it can be built at about one-fifth of the cost of an iron one. The Superintending Engineer has been directed to prepare designs accordingly, and to proceed with the collection of timber without delay.

Hill Cart Road.

25. The first portion of the new line of road is known as the Terai Section. It extends from the Mahanuddy to a place called Panchkeela, about 10 miles from the Bungalow: about 3 miles of it still remains to be metalled.

26. This "Panchkeela" is a curious instance of how easily a name may become fixed. Panchkeela is now the place where the Hill Cart Road, as estimated for, commences, and where the Terai portion ends. I heard it spoken of as frequently as Silligoree or Pankabaree, yet I could see nothing to mark it.—no village, nor stream, nor hut, it is not even the point where the stiff ascent of the hill road commences. On enquiry I found that the origin of it was this,—a Mr. Dixon Derry surveyed the Terai line; when he thought he had got far enough he put down "five

pegs and ended his work. The natives then called it Panekkeela (five pegs), the estimate for the Terai work ended there, and there the Hill Cart Road commenced.

27. The point where the stiff slope of the road really commences is at a well marked spot called Sookna Haut, three miles lower down, and, if there be separate estimates for the road at all, this is the point which should mark it.

28. The Darjeeling Hill Cart Road extends from Panekkeela to Darjeeling-market-place. The "lower section," is south of Kursiong, the "upper section" between Kursiong and the market.

29. The lower section is not yet fit for traffic: there is a little blasting still to be done above Gya Baree. The upper section has been open for traffic for some three or four years past. It takes the traffic of the old road, which joins it at Kursiong.

30. From what I have seen of this cart road, which I examined from end to end, I am persuaded that by far the greater portion of it will require metalling. It is made as an unmetalled road, and there was some ground for thinking that a road, through rocky material, might do without metal; but the rock, generally, is a rotten clay slate or micaceous slate, which almost melts by rain and exposure, and which, I am certain, will cut up under rain and traffic. This view is confirmed by what has occurred on the upper section, where the rock is a kind of very soft gneiss, here and there mixed with a reddish clay, but it cuts up freely in the rains. A considerable portion of it has been already improved,

virtually metalled, by covering it with the best of the gneiss rock, both in the form of soling and of metal. The Superintending Engineer should submit a separate estimate for metalling such portions of the road as are not likely to stand.

31. There will also be a considerable expenditure for renewing temporary bridges and rebuilding temporary revetment walls. No doubt the best way of dealing with the case is to submit an estimate for all such work as will not be covered by the estimate for the original work. These works are not really repairs in the proper meaning of the word: and charging them to it, and thus making the annual repairs a very heavy item, is calculated to give an unfairly alarming idea of the ultimate expense of the work. If the road be properly finished, the annual repair charges will be comparatively light.

32. The road generally is a fine work. The grades on it are easier than those on Mont Cenis. It has been laid out with great care, under most difficult circumstances, and from the use made of the upper portion there can be little doubt that the traffic on it will be large and important.

33. The whole line cannot, I think, be properly open for traffic before January 1868, and the work up to the present time has cost about Rupees 15,00,000 or 36,000 a mile; metalling and completing the bridges will cost probably Rupees 4,000 a mile more, making a total of Rupees 40,000 a mile.

H. LEONARD, C. E.,

Offy. Chief Engineer, Bengal.

The 22nd April 1868.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 15th to 21st April 1868.

| Month. | Date | Reduced Reading of Barometer at 10 A. M. | THERMOMETER | | Daily Range of the Temperature. | Mean Temperature for the day. | Mean Wet Bulb. | Computed Mean Dew-point. | Mean Degree of humidity for the day. | Prevailing Direction of Wind during the day. | Rain. | Max. Pressure of Wind. | | Daily Velocity of Wind. | GENERAL REMARKS. |
|--------|------|--|------------------|-----------------|---------------------------------|-------------------------------|----------------|--------------------------|--------------------------------------|--|---------|------------------------|-------|-------------------------|--|
| | | | Highest Reading. | Lowest Reading. | | | | | | | | Max. | Min. | | |
| | | Inches. | ° | ° | ° | ° | ° | ° | | | Inches. | ° | Miles | | |
| April | 15th | 29.934 | 90.6 | 78.6 | 12.0 | 84.2 | 78.4 | 74.3 | 0.72 | S by E & S | ... | 4.0 | 29.5 | | Clear, squalls from S. and scattered cumuli. High wind from S. A. M. to 6 P. M. |
| | 16th | 31.0 | 90.4 | 70.4 | 20.0 | 82.4 | 76.9 | 73.0 | .74 | S & S by W | 0.90 | 6.6 | 29.7 | | Squalls from S. and scattered cumuli. High wind from 7 A. M. to 9 P. M. Thunder and lightning from 8 to 11 P. M. Rain at 8 and 9 P. M. |
| | 17th | 30.7 | 90.5 | 71.4 | 19.1 | 81.0 | 74.0 | 69.1 | .68 | S S W & Variable | ... | 3.8 | 34.3 | | Chiefly scattered clouds. Brisk wind from 2 A. M. to 7 P. M. Lightning from 1 to 4 A. M. |
| | 18th | 33.2 | 92.4 | 75.8 | 17.8 | 83.5 | 77.6 | 73.6 | .73 | S S W & S | ... | 1.5 | 21.9 | | Clear. Brisk wind from 5 to 9 P. M. |
| | 19th | 38.4 | 94.0 | 79.0 | 15.0 | 85.4 | 80.8 | 77.1 | .77 | S & S S W | ... | 1.3 | 20.4 | | Chiefly clear. Brisk wind from 6 to 7 P. M. |
| | 20th | 37.4 | 94.5 | 80.5 | 14.0 | 86.3 | 81.5 | 78.1 | .77 | S & S S W | ... | ... | 25.2 | | Clouds of different kinds. |
| | 21st | 38.3 | 98.0 | 80.5 | 17.5 | 87.3 | 78.2 | 72.7 | .68 | S & Variable | ... | ... | 15.3 | | Clouds of different kinds. Drizzled at 6 A. M. |

The mean Temperature and the mean Wet Bulb are derived from the twenty-four hourly Observations made during the day.

The Dew-point is computed with the Greenwich constants. The figures in column ten represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1 foot 2 inches, and that of the Anemometer 70 feet 10 inches, above the level of the ground. The velocity of wind, as indicated by Robinson's Anemometer, is registered from noon to noon.

| | | | |
|---|-----------------------|-----|---------|
| The extreme variation of Temperature during the past seven days | ... | ... | 27.6 |
| The Max. Temperature during the past seven days | ... | ... | 98.0 |
| The Max. Temperature during the corresponding period of the past year | ... | ... | 97.8 |
| The mean humidity during the past seven days | ... | ... | 0.72 |
| The mean humidity during the corresponding period of the past year | ... | ... | 0.62 |
| | | | Inches. |
| The total fall of rain from 15th to 21st... | { by lower rain gauge | ... | 0.95 |
| | { by Anemometer gauge | ... | 0.78 |
| Ditto ditto from 15th to 21st, average of fourteen previous years | ... | ... | 0.78 |
| Ditto ditto between the 1st January and the 21st current | ... | ... | 3.21 |
| Ditto ditto during the corresponding period of the past year | ... | ... | 3.21 |

The 27th April 1868.

GOVERNMENT SEN,
In charge of the Observatory.

Meteorological Report up to 14th April 1868.

| STATIONS. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | WEATHER. |
|------------------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|---------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| CALCUTTA. | | | | | | | | | | |
| | | | Inches. | ° | ° | | | | Inches. | |
| | 8th | 10 | 29.858 | 85 | 77 | 69 | S S W | ... | ... | Covered with cumuli. |
| | | 18 | 29.712 | 87 | 78 | 65 | S | ... | ... | Overcast |
| | 9th | 10 | 29.845 | 87 | 80 | 72 | S | ... | ... | Scattered cumuli. |
| | | 14 | 29.858 | 83 | 79 | 61 | W N W | ... | ... | Idio. |
| | 10th | 10 | 29.812 | 87 | 79 | 68 | S | ... | ... | Seeds from S. |
| | | 18 | 29.802 | 89 | 81 | 69 | S W | ... | ... | Cumuli to N. E. |
| | 11th | 10 | 29.805 | 86 | 80 | 76 | S S W | ... | ... | Covered with cumuli & Seeds from S. |
| | | 18 | 29.875 | 89 | 80 | 66 | S S W | ... | ... | Scattered cumuli and Seeds from S. |
| | 12th | 10 | 29.782 | 88 | 81 | 73 | S S W | ... | ... | Seeds from S. |
| | | 18 | 29.808 | 91 | 81 | 79 | S S E | ... | ... | Scattered cumuli. |
| | 13th | 10 | 29.797 | 88 | 81 | 79 | S S W | ... | 0.70 | Idio. |
| | | 14 | 29.846 | 90 | 81 | 69 | S S W | ... | ... | Clear. |
| | 14th | 10 | 29.804 | 87 | 80 | 72 | S S W | ... | ... | Scattered cumuli. |
| | | 18 | 29.783 | 89 | 81 | 69 | S S W | ... | ... | Idio. |
| SANDWICH ISLAND. | | | | | | | | | | |
| | 6th | 9-30 | 29.791 | 85 | 79 | 75 | S W | Light | ... | Scattered clouds. |
| | | 14 | 29.776 | 85 | 80 | 74 | S | Light | ... | Cloudy. |
| | 7th | 9-30 | 29.781 | 88 | 80 | 78 | S W | High | ... | Idio. |
| | | 10 | 29.773 | 87 | 82 | 78 | S W | High | ... | Idio. |
| | 10th | 9-30 | 29.750 | 84 | 81 | 70 | S W | High | ... | Scattered clouds. |
| | | 18 | 29.804 | 87 | 81 | 76 | S W | High | ... | Idio. |
| | 11th | 9-30 | 29.741 | 81 | 81 | 83 | S W | High | ... | Idio. |
| | | 16 | 29.846 | 87 | 81 | 76 | S W | High | ... | Idio. |
| | 12th | 9-30 | 29.713 | 84 | 81 | 67 | S W | Strong | ... | Cloudy. |
| | | 14 | 29.865 | 86 | 81 | 83 | S W | Strong | ... | Idio. |
| | 13th | 9-30 | 29.744 | 81 | 81 | 87 | S W | Moderate | ... | Cloudy, smart fall of rain accompanied with thunder & rain at 19 hours yesterday. |
| | | 16 | 29.855 | 87 | 81 | 78 | S W | Moderate | ... | Scattered clouds. |
| | 14th | 9-30 | 29.811 | 84 | 80 | 79 | S W | Strong | ... | Cloudy. |
| | | 18 | 29.848 | 86 | 81 | 79 | S W | Strong | ... | A few scattered clouds. |
| CEYLON. | | | | | | | | | | |
| | 8th | 9-30 | 29.823 | 77 | 74 | 66 | E N E | Light | ... | Cirrocumuli. Heavy thunder & rain this morning. |
| | | 16 | 29.812 | 81 | 78 | 78 | S | Light | ... | Cumulostrati. |
| | 9th | 9-30 | 29.807 | 78 | 78 | 90 | E | Light | ... | Idio. |
| | | 18 | 29.879 | 80 | 78 | 78 | S by E | Moderate | ... | Idio. Overcast all day. |
| | 10th | 9-30 | 29.770 | 78 | 78 | 90 | E S E | Light | 7.60 | Cumulostrati round horizon. Heavy rain this morning. Gauge overflowed. |
| | | 16 | 29.881 | 79 | 78 | 86 | S | Light | ... | Cumulostrati and nimbi, distant towards N. W. no rain since morning but overcast all day. |
| | 11th | 9-30 | 29.844 | 76 | 78 | 81 | E | Light | 2.70 | Heavy rain and severe lightning last night & this morning, a heavy shower and passed over from N. to S. accompanied by a strong wind from N. |
| | | 16 | 29.888 | 82 | 77 | 78 | S | Light | ... | Misty horizon, cumuli, steady wind. |
| | 12th | 9-30 | 29.783 | 81 | 78 | 84 | S by E | Moderate | ... | Cumuli. |
| | | 18 | 29.882 | 81 | 78 | 78 | S by W | Moderate | ... | Cloudy horizon, mists & dy wind. |
| | 13th | 9-30 | 29.747 | 81 | 79 | 91 | S | Fresh | 1.3 | Cumuli drifting from S. to N. Steady wind, heavy rain last night. |
| | | 16 | 29.881 | 82 | 78 | 82 | S by W | Fresh | ... | Cirrocumuli, strong wind from S. all day. |
| | 14th | 9-30 | 29.778 | 80 | 78 | 86 | S by E | Moderate | ... | Cumuli. |
| | | 18 | 29.868 | 83 | 78 | 78 | S by E | Strong | ... | Blowing strongly from S. mists & dy wind, cumuli, heavy towards W. |
| ARABIA. | | | | | | | | | | |
| | 8th | 9-30 | 29.814 | 85 | 77 | 75 | S W | Light | ... | Cirrocumuli. |
| | | 18 | 29.829 | 85 | 78 | 71 | S W | Light | ... | Fine. |
| | 9th | 9-30 | 29.807 | 82 | 77 | 74 | W | Light | ... | Threatening |
| | | 10 | 29.823 | 84 | 81 | 67 | S W | Light | ... | Stratulus to N. W. and cumuli to N. at sunset. |
| | 10th | 9-30 | 29.889 | 85 | 78 | 71 | S W | Light | ... | Cirrocumuli from N. W. to S. E. along the horizon. |
| | | 18 | 29.806 | 86 | 78 | 68 | S W | Light | ... | Fine. |
| | 11th | 9-30 | 29.879 | 85 | 79 | 74 | S W | Light | ... | Idio. |
| | | 18 | 29.808 | 86 | 80 | 74 | W | Light | ... | Idio. |
| | 12th | 9-30 | 29.878 | 83 | 78 | 71 | W | Light | ... | Idio. |
| | | 18 | 29.800 | 80 | 78 | 68 | S W | Light | ... | Idio. |
| | 13th | 9-30 | 29.802 | 81 | 78 | 75 | S | Light | ... | Idio. |
| | | 18 | 29.820 | 86 | 79 | 72 | S W | Light | ... | Scattered cirri. |
| | 14th | 9-30 | 29.800 | 85 | 78 | 64 | S | Light | ... | Cloudy. |
| | | 18 | 29.820 | 86 | 80 | 76 | S | Light | ... | Nimbus cloud to S. W. and scattered cumuli to N. & N. E. |

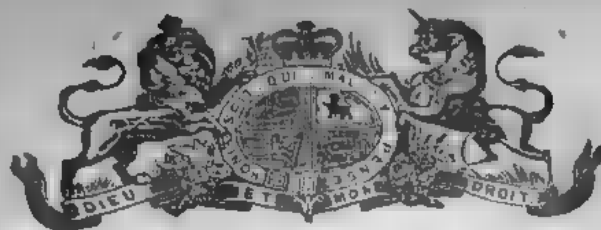
| DATE. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | Weather. |
|-------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|---------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| | | | Inches. | ° | ° | | | | Inches. | |
| | 6th | 9-30 | 29.893 | 87 | 79 | 68 | S | Light | ... | Light cirri and haze. |
| | | 16 | 29.779 | 91 | 81 | 65 | S by E | Moderate | ... | Scattered cirri to N. E. & N. W. and misty horizon, unsteady wind. |
| | 9th | 9-30 | 29.873 | 89 | 80 | 69 | S by W | Light | ... | Hazy, clear sky. |
| | | 16 | 29.712 | 91 | 80 | 60 | S | Moderate | ... | Misty, unsteady wind. |
| | 10th | 9-30 | 29.657 | 84 | 80 | 69 | S by E | Moderate | ... | Scattered cirri, cirrostrati to N. N. E., horizon misty and overcast. |
| | | 16 | 29.734 | 91 | 80 | 60 | S | Moderate | ... | Cirri and misty horizon. |
| | 11th | 9-30 | 29.870 | 88 | 81 | 72 | S by E | Light | ... | Morning covered with strati & high wind, cirrostrati, haze & misty horizon. |
| | | 16 | 29.784 | 88 | 79 | 65 | S by E | Light | ... | unclouded cirrostrati, strati & overcast, unsteady wind. |
| | 12th | 9-30 | 29.863 | 87 | 80 | 72 | S by E | Moderate | ... | Scattered cirri & haze. |
| | | 16 | 29.720 | 91 | 79 | 66 | S by E | Light | ... | Cirri cumulostrati and misty horizon. |
| | 12th | 9-30 | 29.848 | 89 | 80 | 68 | S | Light | ... | A few scattered cirri to S. E. and haze. |
| | | 16 | 29.733 | 89 | 80 | 65 | S by W | Light | ... | Cumulostrati, cirrostrati, strati, distant thunder S. W., unsteady wind. |
| | 14th | 9-30 | 29.800 | 88 | 79 | 65 | S by W | Light | ... | Thin cirri and haze. |
| | | 16 | 29.718 | 89 | 78 | 59 | S | Moderate | ... | Cumulostrati, cirrostrati and strati, squalls coming up from S., unsteady wind. |
| | 8th | 10 | 29.918 | 88 | 75 | 53 | S | 11° | ... | Clear. |
| | | 16 | 29.775 | 85 | 78 | 64 | S E | 14° | ... | Light. |
| | 9th | 10 | 29.902 | 89 | 74 | 46 | S by E | 19° | ... | Light. |
| | | 16 | 29.854 | 85 | 78 | 71 | S E | 15° | ... | Light. |
| | 10th | 10 | 29.901 | 89 | 77 | 54 | S S W | 19° | ... | Light clouds. |
| | | 16 | 29.738 | 85 | 78 | 71 | S E | 15° | ... | Hazy. |
| | 11th | 10 | 29.890 | 90 | 78 | 60 | S by W | 10° | ... | Thick haze. |
| | | 16 | 29.715 | 87 | 75 | 63 | S E | 16° | ... | Fine with light clouds. |
| | 12th | 10 | 29.899 | 89 | 78 | 59 | S E | 19° | ... | Light ditto. |
| | | 16 | 29.771 | 89 | 76 | 61 | S E by S | 16° | ... | Clear. |
| | 13th | 10 | 29.881 | 89 | 76 | 52 | S | 18° | ... | Hazy. |
| | | 16 | 29.751 | 89 | 79 | 72 | S E | 14° | ... | Clear. |
| | 14th | 10 | 29.802 | 89 | 78 | 53 | S E | 12° | ... | Passing clouds. |
| | | 16 | 29.724 | 87 | 80 | 73 | S E | 18° | ... | Clear. |
| | 8th | 10 | 29.613 | ... | ... | ... | E | ... | ... | Strati. |
| | | 16 | 29.497 | ... | ... | ... | W | ... | ... | Strati, cirrostrati. |
| | 9th | 10 | 29.675 | ... | ... | ... | S E | ... | ... | Ditto. |
| | | 16 | 29.489 | ... | ... | ... | W | ... | ... | Strati. |
| | 10th | 10 | 29.805 | ... | ... | ... | W | Light | ... | Strati. |
| | | 16 | 29.621 | ... | ... | ... | W | Light | ... | Strati. |
| | 12th | 10 | 29.120 | ... | ... | ... | N W | Light | ... | Strati. |
| | | 16 | 29.687 | ... | ... | ... | W | Light | ... | Strati. |
| | 13th | 10 | 29.170 | ... | ... | ... | W | Light | ... | Strati. |
| | | 16 | 29.374 | ... | ... | ... | W | Light | ... | Strati. |
| | 14th | 10 | 29.434 | ... | ... | ... | W | Light | ... | Strati. |
| | | 16 | 29.579 | ... | ... | ... | W | Light | ... | Strati. |
| | 8th | 9-30 | 29.919 | 88 | 80 | 34 | S E | ... | ... | S E breeze in the morning. |
| | | 16 | 28.848 | 96 | 70 | 23 | W | ... | ... | S E wind from 9 hours to 12 hours. Veering to N W at 14 hours, thunder and lightning at 19 hours. |
| | 9th | 9-30 | 28.913 | 90 | 71 | 35 | S E | ... | ... | Rain at 23 hours. |
| | | 16 | 28.798 | 96 | 70 | 23 | N W | ... | ... | Bulky cloudy morning, few drops of rain at 7 hours, N E wind at 12. Rain with a little hail at 13 hours, sharp storm with rain at 18.30 hours. |
| | 10th | 9-30 | 28.804 | 84 | 72 | 53 | Calm | ... | ... | S W wind in the morning changing to N W at 16 hours. |
| | | 16 | 28.704 | 91 | 70 | 31 | S E | ... | 0.10 | Strong N wind all day long. |
| | 11th | 9-30 | 28.928 | 86 | 66 | 35 | S W | ... | ... | Strong N W wind all day long. The wind yesterday and today reminds of the hot wind. |
| | | 16 | 28.851 | 88 | 65 | 20 | N W | ... | ... | Calm day. |
| | | 16 | 28.684 | 85 | 65 | 29 | N W | ... | ... | Misty. |
| | | 16 | 28.774 | 95 | 63 | 14 | N W | ... | ... | Rather misty. |
| | | 9-30 | 28.801 | 89 | 67 | 25 | W | ... | ... | Misty. |
| | | 16 | 28.727 | 97 | 68 | 19 | W | ... | ... | Scattered cumuli. Very hazy horizon. |
| | 14th | 9-30 | 28.829 | 93 | 68 | 22 | Calm | ... | 0.40 | Dense mist. Disagreeable morning. |
| | | 16 | 28.751 | 100 | 67 | 16 | N W | ... | 0.12 | Dense mist. |
| | 8th | 9-30 | 28.295 | 55 | 54 | 91 | S E | Light | 0.06 | Rather misty. |
| | | 16 | 28.244 | 55 | 53 | 66 | W | Light | ... | Scattered cumuli, rather heavy to S. W. |
| | 9th | 9-30 | 28.340 | 54 | 54 | 105 | E | Light | ... | Misty. |
| | | 16 | 28.231 | 57 | 56 | 93 | W N W | Light | ... | Cumuli round horizon. |
| | 10th | 9-30 | 28.278 | 54 | 53 | 93 | S E | Light | ... | Mist rising all round. |
| | | 16 | 28.203 | 57 | 56 | 95 | Calm | ... | ... | Scattered cumuli. |
| | 11th | 9-30 | 28.244 | 50 | 55 | 93 | W N W | Light | 0.02 | Misty. |
| | | 16 | 28.145 | 53 | 58 | 72 | W N W | Moderate | ... | Rather misty. |
| | 13th | 9-30 | 28.221 | 58 | 56 | 87 | S E | Light | ... | |
| | | 16 | 28.147 | 63 | 58 | 77 | W by S | Light | ... | |
| | 14th | 9-30 | 28.220 | 59 | 57 | 87 | E S E | Light | ... | |
| | | 16 | 28.165 | 61 | 57 | 71 | W | Light | ... | |
| | 14th | 9-30 | 28.220 | 59 | 55 | 93 | N W | Light | ... | |
| | | 16 | 28.199 | 57 | 55 | 87 | W | Light | ... | |

* Velocity in miles per hour.

| STATIONS. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. Inches. | WEATHER. |
|--------------|--------|-------|------------------------------|--------------|------|-------------------------|------------|-----------|------------------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| Dacca. | 8th | 9-30 | 29.485 | 79 | 74 | 86 | S S E | Light | 0.2 | Drizzling, very cloudy. |
| | 16 | | 29.740 | 77 | 75 | 80 | E | Light | 0.6 | Cloudy rain since 11.20. |
| | 9th | 9-30 | 29.611 | 77 | 75 | 90 | S E | Light | ... | Rain this morning. |
| | 16 | | 29.686 | 79 | 75 | 89 | S S E | Light | ... | Partially cloudy. |
| | 10th | 9-30 | 29.713 | 80 | 79 | 95 | S S W | Light | ... | Cloudy. |
| | 16 | | 29.679 | 78 | 76 | 90 | E S E | ... | 3.8 | Heavy gale since 14.50. severe thunder and lightning. |
| | 11th | 6-30 | 29.801 | 77 | 75 | 81 | S S E | ... | 0.8 | Heavy gale this morning also heavy fall of rain. Rain gauge broken. |
| | 16 | | 29.441 | 81 | 79 | 91 | S | Strong | ... | Cloudy. |
| | 13th | 9-30 | 29.750 | 81 | 79 | 91 | S S E | Strong | ... | Ditto. |
| | 16 | | 29.613 | 83 | 81 | 91 | S | Moderate | ... | Ditto. |
| | 15th | 9-30 | 29.741 | 81 | 79 | 91 | S S W | Moderate | ... | Threatening. |
| | 16 | | 29.621 | 84 | 81 | 87 | S S W | Moderate | ... | Cloudy. |
| Patna. | 14th | 9-30 | 29.758 | 82 | 80 | 91 | S | Moderate | ... | Threatening. |
| | 16 | | 29.620 | 82 | 81 | 88 | S S W | Moderate | ... | Cloudy. |
| | 8th | 9-30 | 29.633 | 81 | 78 | 86 | S E | ... | ... | Wind east all day. |
| | 16 | | 29.486 | 82 | 78 | 84 | E | ... | ... | Ditto ditto, cloudy to |
| | 9th | 9-30 | 29.814 | 85 | 87 | 84 | E | ... | ... | wards evening. |
| | 16 | | 29.808 | 84 | 74 | 85 | N E | ... | ... | East wind prevalent. |
| | 10th | 9-30 | 29.553 | 90 | 79 | 89 | E | ... | ... | A fair day. |
| | 16 | | 29.463 | 95 | 78 | 81 | E | ... | ... | Ditto. |
| | 11th | 9-30 | 29.563 | 89 | 73 | 40 | E | ... | ... | Ditto. |
| | 16 | | 29.181 | 98 | 76 | 33 | W | ... | ... | East wind A case of |
| | 12th | 9-30 | 29.554 | 90 | 73 | 38 | W | ... | ... | cholera. |
| | 16 | | 29.451 | 100 | 71 | 33 | N W | ... | ... | |
| Monghyr. | 13th | 9-30 | 29.524 | 88 | 73 | 51 | N W | ... | ... | |
| | 16 | | 29.449 | 101 | 77 | 39 | N W | ... | ... | |
| | 14th | 9-30 | 29.585 | 85 | 72 | 40 | E | ... | ... | |
| | 16 | | 29.443 | 100 | 75 | 29 | W N W | ... | ... | |
| | 8th | 10 | 29.781 | 80 | 78 | 91 | | | | |
| | 16 | | 29.532 | 82 | 88 | 84 | | | | |
| | 9th | 10 | 29.696 | 80 | 78 | 91 | | | | |
| | 16 | | 29.587 | 91 | 88 | 88 | | | | |
| | 10th | 10 | 29.627 | 88 | 80 | 80 | | | | |
| | 16 | | 29.408 | 93 | 90 | 86 | | | | |
| | 11th | 10 | 29.584 | 91 | 79 | 86 | | | | |
| | 16 | | 29.421 | 94 | 90 | 84 | | | | |
| False Point. | 12th | 10 | 29.566 | 91 | 78 | 60 | | | | |
| | 16 | | 29.464 | 99 | 84 | 82 | | | | |
| | 13th | 10 | 29.581 | 91 | 85 | 18 | | | | |
| | 16 | | 29.740 | 99 | 85 | 19 | | | | |
| | 14th | 10 | 29.610 | 88 | 74 | 43 | | | | |
| | 16 | | 29.478 | 94 | 76 | 40 | | | | |
| | 5th | 9-30 | 29.846 | 85 | 81 | 88 | S | ... | ... | Strong breezes and fog. |
| | 16 | | 29.708 | 86 | 82 | 88 | S S W | ... | ... | Ditto weather heavy thunder and lightning all round, with overcast sky and appearance of rain at 18 hours. |
| | 6th | 9-30 | 29.668 | 85 | 81 | 83 | S S W | ... | ... | Moderate breezes. |
| | 16 | | 29.726 | 86 | 82 | 83 | S S W | ... | ... | Strong breezes and fog. |
| | 7th | 9-30 | 29.801 | 84 | 79 | 79 | S W | ... | ... | Strong breezes. |
| | 16 | | 29.696 | 88 | 79 | 72 | S W | ... | ... | Ditto weather. |
| False Point. | 8th | 9-30 | 29.702 | 84 | 79 | 79 | S W | ... | ... | Ditto ditto. |
| | 16 | | 29.635 | 88 | 81 | 79 | S W | ... | ... | Ditto breeze. |
| | 9th | 9-30 | 29.772 | 84 | 80 | 83 | S W | ... | ... | Very strong breezes and haze. |
| | 16 | | 29.639 | 85 | 80 | 79 | S W | ... | ... | Ditto weather and haze. |
| | 10th | 9-30 | 29.765 | 86 | 89 | 83 | S W | ... | ... | lightning to the northwest at 18 hours. |
| | 16 | | 29.637 | 86 | 89 | 83 | S W | ... | ... | Strong weather and haze. |
| | 11th | 9-30 | 29.768 | 86 | 81 | 79 | S W | ... | ... | Ditto ditto. |
| | 16 | | 29.628 | 86 | 81 | 79 | S W | ... | ... | Strong breezes and very heavy. |
| | | | | | | | | | | Ditto weather and ditto. |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

BENGAL SECRETARIAT,
The 24th April 1868.

HENRY F. BLANFORD,
Meteorological Reporter to Govt. of Bengal.



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, MAY 6, 1868.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on a payment of six Rupees per annum if delivered in Calcutta, or twelve Rupees if sent by Post.

Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday, May 2nd, 1868.

Present:

HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, *Presiding.*

T. H. COWIE, Esq., *Advocate-General.*
H. L. DAMPIER, Esq.,
E. T. TREVOR, Esq.,
A. R. THOMPSON, Esq.,
S. S. HOOD, Esq.,
KOOBAR HURENDRA KRISHNA, RAI BAHADOOR.

BABOO RAMANATH TAGORE.
H. KNOWLES, Esq.,
BABOO PRARY CHAND MITTRA.
T. ALCOCK, Esq.,
H. H. SUTHERLAND, Esq.,
KOOKAR SATYANUND GHOSAL.

SURVEY OF STEAM VESSELS.

MR. HOOG moved that the Bill "to make further provision for the Survey of Steam Vessels within the Provinces subject to the Lieutenant-Governor of Bengal" be further considered in order to the Settlement of the Clauses of the Bill.

The motion was agreed to.

On the motion of MR. HOOG, a verbal amendment was made in Section 1.

MR. DAMPIER said, he had had the honor to ~~move~~ at the last Meeting of the Council that he should move the introduction of some Sections after Section 5. He believed he then gave the Council to understand that the Sections had just been given into his hands, and that he had been requested to move for their introduction. He had since then considered the subject further, and one of the three Sections of which he had given notice did not appear such as ought to be introduced. He would now simply move the introduction of a Section empowering the Government to order a surveyor to enter any Steam Vessel on which an explosion should take place and make a proper enquiry, for the purpose of ascertaining with whom the blame lay, and also for ascertaining and avoiding, if possible, in future, the cause that had led to the accident. He would therefore

move that the following Section be inserted after Section 5:—

"Whenever any explosion shall occur on board of any Steam Vessel subject to this Act, it shall be lawful for the Lieutenant-Governor, if he shall think fit, to direct that an investigation of the cause of such explosion be made by such person or persons as he shall think fit. The person or persons authorized by the Lieutenant-Governor to make such investigation may enter into and upon such Steam Vessel with all necessary workmen and laborers, and remove any portion of such Steam Vessel, or of the machinery thereof, for the purpose of such investigation, and shall report the cause of such explosion."

The motion was agreed to.

THE ADVOCATE-GENERAL said, he had before the Council a motion to introduce a Section with the object of excluding from the operation of the Act private Steamers. There had been some discussion on the subject, and a difference of opinion seemed to prevail as to whether it was necessary or desirable that the provisions of the principal Act with regard to Surveys, and of this amending Bill as to Certificates for Engineers, should apply to vessels of the class to which he had referred. On the one hand there was this to be said. He supposed there could not be a doubt that the general principle on which the Act of 1862 and this amending Act proceeded was, that as Steam Vessels had a sort of monopoly, or at any rate had

such signal advantages as regards the necessities of the public in the conveyance of passengers and goods, that it was only fair and just to regard them as vessels in which the public had an interest, and to require the owners to take such precautions as the public safety and convenience might require. That general principle did not seem to apply to the case of Steamers, large or small, the property of private owners, used for the mere purpose of amusement. On the other hand, there was force in what was mentioned that on board of such Steamers, through negligence, overloading, or other circumstances, explosions might occur, the effects of which might not be limited to the owners or their servants, but might injure the public. Therefore, on consideration, it had been suggested to him, and he should adopt the suggestion, that instead of introducing a Section which would exempt private Steamers altogether from the provisions of the two Acts, it should be left optional to the Executive Government to exempt the owners of such Steamers from complying with those provisions which had relation to the employment of certificated Engineers. To extend those provisions to all such Steamers would indirectly render the employment of such Steamers impracticable. It could not be expected that it would be worth the while of the owners of Steamers of a few tons, kept for purposes of pleasure, to engage the services of such Engineers; but with the view of carrying out the suggestion with regard to protecting the public from danger, he (the Advocate-General) was willing that the provisions of the Act with regard to Inspection and Survey should apply to private Steamers. He would therefore, with the leave of the Council, propose to move, in lieu of the Section of which he had given notice, one to the following effect, to be inserted after Section 11, which provided a penalty for a Steamer plying without a certificated Engineer; leaving Steamers of all classes, whether public or private, to be subject to periodical Inspection and Survey:—

"It shall be competent to the Lieutenant-Governor of Bengal to exempt from the operation of Sections X and XI any Steamer which does not ply with passengers or goods or as a Steam Tug for hire."

The motion was agreed to.

Section 16 was agreed to.

In Section 17 the date for the commencement of the Act was altered from the 1st of May to the 1st of June.

Section 18 was agreed to.

The Preamble was passed after a verbal amendment; and the title was agreed to.

CRUELTY TO ANIMALS.

BABOO PEARY CHAND MITTRA moved that the Bill "for the prevention of Cruelty to Animals" be read in Council. He said, amongst the papers printed and circulated there was a statement of convictions. He thought it necessary to observe that those convictions had been effected by the limited instrumentality of the Society here, and the statement was therefore not a full representation of the magnitude of the evil which existed. But during the last 41 years (1824 to 1865,) the convictions in London had been upwards of 10,000, while in Calcutta, during 5 years and 3 months, the convictions had amounted to 5,115. So, imperfect as that statement of convictions here might be with reference to the limited agency of the Society, the convictions in Calcutta were much larger than the convictions in London.

As to the course of legislation on this subject which had engaged the attention of Parliament from time to time, it appeared that in 1822 an Act to prevent the cruel and improper treatment of Cattle was passed. In 1835 the Royal Society for the prevention of Cruelty to Animals obtained an amendment of Mr. Martin's Act, whereby more extensive legislative powers were granted, and in 1839 it succeeded in procuring the insertion of a Clause in the new Metropolitan Police Act, by means of which the cruel and dangerous practice of using dogs to draw carts and other vehicles was prohibited within 15 miles of London; in 1845 an amendment of the law for regulating knackers' yards was made; in 1850 a new and much improved Act for the more effectual prevention of cruelty to animals was passed; and in 1859 an Act prohibiting the use of dogs as beasts of draught or burden throughout England was enacted.

So there had been progressive legislation by Parliament for the prevention of cruelty to animals. There had been from time to time general legislation, but when Parliament thought that general legislation did not meet particular cases, fresh legislation was resorted to to meet the evil in its different aspects. Therefore the argument used that whenever there was general legislation there ought not to be special legislation, did not exactly hold good in the present case; because the English Act, which he held in his hand, viz., 12 and 13 Vic. c. 92, and which was passed in 1850, was both general and special: that was to say, it was specific as regards particular cases. Taking that as a model, the Bill had been drawn up which was now submitted to the Council.

The first Section defined what an animal was for the purposes of the Act: it was declared to mean any domestic or tamed quadruped, or any domestic or tamed bird.

The second Section was simply a recapitulation of the existing law, which it was proposed to repeal by the 9th Section of the Bill. The only addition was the word "overdrive," which was taken from Section 30 of Act V. of 1866, because whatever held good in the case of horses, ought to hold good in the case of bullocks.

The 3rd Section of the Bill provided a penalty for overloading. That had been specially introduced, because the existing law did not reach the root of the evil. There might be cases of overloading which might not assume one or other of the forms of cruelty provided for in the existing law; and Magistrates do and would differ in their opinion as to its construction. He (Baboo Peary Chand Mittra) declared that if he sat on the Police bench, and a case of simple overloading was brought before him, it would be his duty to dismiss such a case under the existing law. He begged to assure Hon'ble Members that overloading was the real cause of the evil. It passed with impunity, because it was thought not to fall within the cognizance of the law, and its effects on cattle were of a serious character. It was continued overloading that manifested itself in galled necks and other diseases; the prolonged suffering from a cruel load was calculated to perpetuate the degenerate condition of cattle, and in such warm weather it was to be doubted whether the hide of a Rhinoceros could stand such continued overloading.

He had ascertained that there were two classes of *ghattys*; the first consisted of those who

drove their own carts, the other of those who employed others for the purpose. The former was a limited class. During the last 20 years, the traffic in Calcutta had so much increased and the demand for carriage was so great, that those who were in the service of the principal *gharry*-men were tempted to take more on carts than they ought to do. Overloading therefore went on, and the carters escaped from punishment, because there was not a single case of overloading brought up yet, the Executive Police entertaining doubts whether any such case would be entertained by the Magistrates.

On the last occasion he had adverted to the Stage Coach Act, which limited the weight to be put on Stage Coaches, and so late as 1867, in the Act for regulating Hackney Carriages, the same principle was recognized, *viz.*, that the license should state the amount of luggage put on every carriage. But from the general nature of the English and Indian Acts, and also considering that the evil was increasing and could not be appreciably checked unless some specific provision was made, this Clause had been introduced.

The 4th Section was taken from the English Act, and provided a penalty for neglecting, which there could hardly be a doubt was necessary, to feed impounded animals.

The 5th Section provided a penalty on persons baiting animals or inciting them to fight. The principle of this Clause was adopted in several Indian Acts, but they related more to the checking of gambling. The Clause was inserted here with a view to prevent the improper and cruel treatment of animals. It was in accordance with a Section of the latest English Act, and was needed here.

The 6th Section provided for the punishment of persons improperly carrying animals, and was also taken from the English Act. There were some who thought that it was perfectly immaterial how animals were carried: they were brought for sale and would soon be butchered. This question had engaged the attention of medical men in England. Dr. Grainger said:—

"It may be proper, as there are some members of the Legislature present, that the real facts of the case should be shown. It has been said that these animals do not suffer from being carried for twelve, or eighteen, or four and twenty hours with their legs tied together, and their heads hanging down out of a cart. Some people have disputed whether that does cause suffering or not. I therefore think it due to the Society to say that I had the honor of being consulted, in conjunction with Dr. Barlow, of St. Bartholomew's Hospital, in order that we might settle the question, whether the custom I have mentioned is really a cause of suffering. In order to determine this point, we had three animals placed in the position in which they are carried to market, under the direction of some of the officers of this Society, and then proceeded to ascertain what was the result. We found that calves in that position give all the indications so familiar to men of science, of intense suffering, resulting from a gorged condition of the brain. We saw what the effect upon ourselves would be of sitting with the head downwards; it is a most painful distressing feeling. But we ascertained, by direct observation, that these animals suffer intensely; that their head and face and throat become gorged and swollen; that there is a great increase of heat, caused by the thorax; and that eventually there is a condition approaching to what is called inflammation; and then, after the animal is killed, if the head be inspected, it is found as might be expected, and ascertained by ocular demonstration, to be gorged with blood, and in a most unnatural condition. The conclusion at which my colleague and myself arrived, is that the animal suffers the most severe suffering, and this, notwithstanding one of those beautiful provisions of nature expressly guarding animals of

this class from the effects of particular positions, and thus preserving the healthy condition of the brain."

The next Section (7) of the Bill was for the prevention of the practice prevalent here of permitting diseased animals to go at large or die in the public streets. And the 8th Section provided a penalty for employing an animal unfit for work, the principle of which was recognized in Act XVI. of 1861, Section 9, where it was applied to horses.

The 9th Section proposed to repeal the existing provisions in the Police Acts; the 10th Section provided the limits within which the Act was to take effect; and the 11th Section gave power to the Lieutenant-Governor to extend the Act to any other places to which he might think fit.

The Bill, no doubt, was susceptible of improvement; but he believed that if a Bill of this kind was passed, it would materially reduce the suffering of animals and produce a healthy educational and moral effect on the community at large.

With those remarks he hoped that the Bill would meet with the support of the Hon'ble Council.

Mr. Hogg said, when permission was asked to bring in this Bill, he had stated the reasons which induced him to oppose its introduction. He had since then perused the papers on which the Hon'ble Mover had based his motion, but he had seen no reason whatever to alter the opinion he had expressed at the last Meeting. He thought the Bill, if introduced, would not only be unnecessary, but that its effects would be mischievous. It was true that progressive legislation had been going on in England, but the Hon'ble Member had omitted to state that by that legislation it had never been attempted to arrive at the object aimed at by this Bill, *viz.*, the enactment of a specific provision against overloading. It would, he (Mr. Hogg) thought, be absolutely impossible to define what was meant by overloading, and he submitted that it would not be wise to leave it to the discretion of each individual Magistrate to determine what constituted overloading. Doubtless, if any case of overloading amounted to positive cruelty or ill-treatment, it would fall within the provisions of Section 67 of the Police Act, which subjected a person to a fine of 100 Rupees for the offence. He therefore thought, that when the advancing civilization of England had not attempted to define overloading, this Council should not attempt to do so.

In the annexure to the Bill, the statement of objects and reasons said:

"The law at present in force for preventing cruelty to animals in Calcutta having hitherto failed to hinder the occurrence of numerous cases of very gross cruelty, it seems expedient to amend the law so as more effectively to check such cases."

From that he (Mr. Hogg) gathered that the Hon'ble Mover of the Bill intended to imply that Section 67 of the Police Act had not been sufficient to cover all cases of cruelty. He did not wish flatly to deny the correctness of that statement; but he (Mr. Hogg) was not aware of a single case having ever been brought before the Magistrates which it was found could not be dealt with under the existing law. If he was wrong he should be happy to be corrected. He thought also, from the statement of convictions which had been referred to, that the working of the law had been eminently satisfactory, and that the prosecutions under the Act had been by no means few in number.

He would not further take up the time of the Council, but would content himself by voting against the motion.

The ADVOCATE-GENERAL said, he wished to make a few observations on the Bill, as the Hon'ble Mover had made reference on the previous occasion to his having communicated with him (the Advocate-General) on the subject.

As regards certain portions of the Bill, he thought it was desirable that the Bill should go into Committee, because, as to what in his opinion was the most important portion of the Bill, viz., the provisions against overloading, he confessed he had doubts whether or not, practically, it could be said that the general provisions of the Police Act could be satisfactorily applied to such case. But it appeared to him—in theory he quite concurred with the Hon'ble Member opposite (Mr. Hogg)—that to make the Bill, as regards the prevention of the practice of overloading, of any practical use, it would be necessary to consider what limit or definition could be laid down as to what should constitute overloading.

Then he (the Advocate-General) also (although uncertain whether or not it was a Section the application of which would be of frequent occurrence) thought that the provision in the 4th Section for punishing persons neglecting to feed impounded animals, was applicable to cases which would not come under the general provision for ill-treatment; and the same remark, he believed, would apply to the 5th Section regarding baiting animals or inciting them to fight.

But he thought that, supposing the Bill went into Committee, Sections 6, 7, and 8 would require consideration. It seemed extremely objectionable to provide penalties for particular species of ill-treatment and to impose special penalties, because no one having common sense would say that carrying animals in a way so as to cause them unnecessary pain or suffering, was not ill-treatment.

The 7th Section, besides, was specially improper, because the practice which it was there attempted to prohibit, of permitting diseased animals to go at large or die in public places, was provided for by the Penal Code. By the 269th Section of the Penal Code an unlawful or negligent act likely to spread infection of any disease dangerous to life, was punishable with six months' imprisonment or fine. Or the offence might fall under the 289th Section, by which negligent omission to take order with respect to any animal so as to guard against danger to human life, was also punishable with six months' imprisonment. He therefore thought it was not only unnecessary, but improper to pass the 7th Section.

With those observations he would briefly say that he would support the motion for the Bill being referred to a Select Committee.

Mr. DAMPIER said, it seemed to him that the main objection to the Bill was as to the provisions against overloading. Before the Legislature was called on to extend the provisions of the existing law, he should be glad to know whether it had been found to be insufficient. The Hon'ble Member on his left (Mr. Hogg) thought that there was considerable doubt whether cases of overloading would not fall within the law; but he (Mr. Dampier) wished to know whether any palpable case of overloading had ever been brought before the Magistrates, and whether any want had been felt.

The ADVOCATE-GENERAL said, what he meant to say was, that he thought it desirable to make

express provision with regard to the practice of overloading: he thought it was desirable that there should become further suitable legislative provision.

BAROO PRARY CHAND MITTRA said, in answer to the question put, he might say that no attempt of the kind had been made, simply because there was no specific provision on the subject in the Act, and because it was believed that such a case could not be entertained by the Magistrates.

The PRESIDENT said, in addition to other reasons which might induce the Council to allow the Bill to go to a Select Committee, it would have the effect of equalizing the law in Calcutta and the Suburbs, which at present, so far as he saw, was very unequal. Apparently, under the Suburban law, a man could only be fined to the amount of 50 Rupees which, in case of non-payment of the fine, would involve only simple imprisonment for two months; whereas in Calcutta he might be fined to the extent of 100 Rupees, and in default of payment to imprisonment with hard labor for three months.

BAROO RAMANATH TAGORE said, he had no objection to the Bill being referred to a Select Committee, because some of the provisions of the Bill were of a laudable character. He admitted, however, that in the details the Bill required much amendment. By the definition section the word "animal" was to be taken to mean any domestic or tamed quadruped, or any domestic or tamed bird; and the 2nd Section provided that every person who should cruelly and wantonly beat, ill-treat, torture or overdrive, or cause to be beaten, ill-treated, tortured, or overdriven, any animal, should be liable to a fine which might extend to 100 Rupees. According to those Sections, therefore, no one would be able to catch or purchase a bird and imprison it for the purpose of domestication, for the Magistrate might consider the act to be "wanton," and fine the man who should contravene the law.

By the 4th Section it appeared that any person who should impound or confine animals and neglect to provide them with sufficient food and water, might be fined. There was a provision already in the Police Act which superseded the necessity of this Section, and if any person under the authority of the Police Act sent animals to be impounded, he should not be called on to feed them, because he was acting under the authority of a law, and it would be the duty of the Commissioner of Police to see that the animals were fed. The proposed Section was a work of supererogation. There were many other objections to the details, with which he would not, however, occupy the time of the Council; he thought that if the Bill went into Committee it might be much improved, and with that view he would support the motion before the Council.

The Council then divided:—

Ayes 10.

KOOMAR SUTYANUND GHOSAL.
MR. SUTHERLAND.
BAROO PRARY CHAND MITTRA.
MR. KNOWLES.
BAROO ROMANATH TAGORE.
KOOMAR HARENDRA KRISHNA.
MR. THOMPSON.
MR. TREVOR.
THE ADVOCATE-GENERAL.
THE PRESIDENT.

Noes 3.

MR. ALCOCK.
" HOGG.
" DAMPIER.

The motion was therefore carried, and the Bill read accordingly.

BABOO PHARY CHAND MITTRA moved that the above Bill be referred to a Select Committee, consisting of Mr. Trevor, Baboo Ramanath Tagore, Mr. Knowles, Mr. Sutherland, and the mover.

The motion was agreed to.

LIMITATION OF APPEALS UNDER REGULATION VII. OF 1822.

MR. TREVOR moved for leave to bring in a Bill to amend the law respecting appeals in cases under Regulation VII. of 1822. He said, the Section of the Regulation of 1822 which it was proposed to amend, was Section 29, which gave three months for an appeal from the Collector to the Board of Revenue. When that Regulation was passed, the offices of Deputy Collector under Regulation IX. of 1833 and of Commissioner under Regulation I. of 1820 did not exist, and appeals were preferred directly from the Collector to the Board. Now, however, there were two, and sometimes three, appeals before a case was finally decided by the Revenue Authorities, and after that, the case could be taken to the Civil Court. The Bill which he moved for leave to introduce, would merely substitute one month for three months in Section 29 of Regulation VII. of 1822. So far, therefore, as the Revenue Authorities were concerned, in cases of settlement or survey, no more than one month would be allowed for appeal, that was to say, one month for an appeal from a decision of a Deputy Collector to the Collector, one month for an appeal from the Collector to the Commissioner, and one month from the Commissioner to the Board of Revenue.

With those remarks, he begged to move for leave to bring in the Bill.

The motion was agreed to.

RECOVERY OF ARREARS OF REVENUE

THE ADVOCATE-GENERAL moved that the period for the presentation of the Report of the Select Committee in the Bill "to make further provision for the recovery of arrears of Land Revenue and public demands recoverable as arrears of land revenue" be extended to the 16th Instant."

The motion was agreed to.

The Council was adjourned to Saturday, the 9th Instant.

Correspondence regarding the practice of taking extra-judicial affidavits and declarations by Magistrates and Justices of the Peace in this Country.

From E. C. RAYLEY, Esq., Secretary to the Government of India, Home Department, to H. L. DAMPIER, Esq., Assistant Secretary to the Government of Bengal, (No. 3601, dated Simla, the 19th August 1867.)

I am directed to forward, for the information of His Honor the Lieutenant-Governor, the annexed extract, paragraphs 2, 3, and 4, from a letter dated the 1st ultimo, from the Advocate-General to the Secretary to the Government of India, in the Military Department, and to state that the Governor General in Council entirely concurs in the opinion expressed therein.

2. The Lieutenant-Governor will doubtless take steps to make it known as far as may be requisite.

Extract from a letter dated the 1st ultimo, from the Advocate-General to the Secretary to the Government of India, Military Department.

Para. 2.—The taking by Magistrates and Justices of the Peace of extra-judicial affidavits and declarations is a practice which is by no means uncommon in this country, and which cannot be too strongly reprobated. At best, such documents are wholly useless, being inadmissible in evidence in any Court of Justice, and acquiring no additional validity whatever from the form of an oath and a Magistrate's signature having been adopted. But beyond this there is always the danger that documents purporting to be so attested may be regarded by persons unacquainted with the ordinary principles of law as having an intrinsic validity which they do not really possess, and that the documents may be accordingly misused.

3. Putting out of question those cases in which, under particular statutes, declarations before a Magistrate or Justice are for particular purposes made evidence, no such functionary has any power to take affidavits not entitled in a cause. A Justice of the Peace has, (save as aforesaid,) nothing to do with affidavits, and if a Magistrate has civil judicial powers, he cannot take an affidavit otherwise than in the course of a civil cause depending before him.

4. I must add, with regard to the particular case of _____'s affidavits, that the Magistrate, even if he had had the legal power, ought not to have given the sanction of his attestation to documents which, on the face of them, disclosed an attempt to interfere with the lawful action of the Military Authorities.

From A. MACKENZIE, Esq., Under-Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department, (No. 942, dated Fort William, the 19th February 1868.)

In your letter No. 8601 of the 19th August last, His Excellency the Governor General in Council expressed his concurrence in an opinion of the Advocate-General, reprobating the practice under which extra-judicial affidavits and declarations were wont to be taken by Magistrates and Justices of the Peace in this country. The Inspector-General of Police, Lower Provinces, in a communication No. 422, dated the 17th ultimo, a copy of which is hereto annexed, has now represented that in consequence of this opinion a difficulty has arisen in the case of a Sowar, who applied, in accordance with usual practice, to the Magistrate of Behar, to take his declaration on solemn affirmation, in respect of his past services. This the Magistrate has now refused to do.

2. Paragraph 9 of the Rules laid down by the Governor General in Council in the late Territorial Department on 4th January 1834, for the grant of superannuation pensions to Unconvenanted Servants of Government, prescribes that if the Officer submitting the application for pension shall be unable to supply the whole of the specific information required, he shall call upon the applicant to furnish a written statement

verified by oath or solemn declaration. A provision to this effect has also been inserted in the revised Leave and Pension Rules for the Uncovenanted Service, published by the Government of India in the Financial Department, on the 13th April 1864, under instructions from the Secretary of State.

3. The statement on oath or solemn affirmation, which is prescribed by these Rules appears to come under the class to which objection has been raised in the orders of August 19th above referred to. It would perhaps be sufficient, if a simple statement were made before the Magistrate without solemn affirmation, and were certified to by the Magistrate as having been made before him, but as this would not fulfil the requirements of the Pension Rules above referred to, His Honor desires to submit the case for the consideration and orders of the Government of India.

From E. C. BAYLEY, Esq., Secretary to the Government of India, Home Department, to the Under-Secretary to the Government of Bengal, (No. 634, dated Fort William, the 11th April 1868.)

I AM directed to acknowledge the receipt of your letter No. 942, dated 19th ultimo, forwarding copy of a communication from the Inspector-General of Police, Lower Provinces, representing

that, in consequence of the views expressed in the Circular of this Department, dated the 19th of August last, the Magistrate of Gya has refused to receive the solemn affirmation of a Sowar (an applicant for pension) regarding his services.

2. In reply I am directed to explain that the Advocate-General's opinion circulated on the 19th August last, with an expression of the concurrence of the Governor General in Council, referred only to extra-judicial affidavits and declarations before Judicial Officers by persons for their private objects. The case now submitted is of a totally different character.

3. The Government, in its executive capacity, has made a rule to the effect, that if the Head of the Office in which an applicant for pension is employed cannot furnish certain information regarding the past services of the applicant, it will be sufficient to obtain a written statement from the applicant himself, "verified by his oath or solemn declaration, if required." This statement is simply made for the purpose of satisfying the Government on certain points. It is not made before a Judicial Officer, and it involves no proceeding of an extra-judicial character.

4. In the present case, the Magistrate should have taken the statement, not in his capacity of Magistrate, but as the Head of the Office to which the applicant belonged.

The License Tax.

Statement of amount collected under Act XXI. of 1867 in the Lower Provinces.

| | PRESIDENCY. | | | | MOFUSSEIL. | | Total. |
|---|---|---------------------------|-------------|---|--------------------------------|----------------------|--------|
| | Before reported. | FOR THE WEEK ENDING | | Reported to close of February 1868. | In March and April 1868. | | |
| | | 4th April. | 11th April. | | | | |
| | Rs. As. P. | Rs. | Rs. As. P. | Rs. | Rs. | Rs. As. P. | |
| Collection ... | 4,66,754 5 5 | 490 | 358 0 0 | 11,44,341 | 16,238 | 16,30,121 5 6 | |
| Deduct Refunds ... | 36,919 13 7 | 684 | 1,785 0 0 | 1,04,666 | 1,850 | 1,44,834 13 7 | |
| Remaining ... | 4,29,834 7 10 | ... | ... | 10,39,675 | 14,388 | 14,85,266 7 10 | |
| Deductions (at the Presi- dency by the Examiner of Claims) from salaries of servants under ... | Government of India Government of Bengal | 27,824 14 2 24,776 7 0 | | 17 7 9 91 9 2 | | 27,843 2 24,868 8 | |
| Ditto at Mofussil Treasuries ... | ... | ... | ... | 72,186 | 248 | 72,437 0 8 | |
| Ditto at other Local Offices ... | ... | ... | ... | 12,180 | 100 | 12,280 0 0 | |
| Ditto in Military Department, less refunds Rupees 2,028-5-4 | ... | ... | ... | ... | ... | 19,351 0 6 | |
| Grand Total ... | 4,85,485 13 0 | ... | 109 0 2 | 11,24,044 | 14,736 | 16,41,006 7 10 | |

Report on the Cultivation of Cinchona at Darjeeling during the month of February 1868.

From T. ANDERSON, Esq., M. D., Superintendent, Botanical Gardens, and in charge of, Cinchona Cultivation in Bengal, to the Junior Secretary to the Government of Bengal,—
(No. 3, dated Botanical Gardens, the 20th April 1868.)

I HAVE the honor to forward the Report on the cultivation of Cinchona at Darjeeling during the month of February 1868.

Report on the cultivation of Cinchona at Darjeeling during the month of February 1868.

THE cutting of jungle on most of the land intended for the extension of the plantations was completed during the month, nearly all the old roads have been repaired and the formation of new ones has been commenced wherever the jungle on the fresh clearances has been burnt. Very little progress can be made in burning the jungle until it is thoroughly dried by the bright sunny weather which generally prevails in March.

A small extent of jungle was burnt on the more exposed spurs, and the land thus cleared has to a certain extent been filled up with Cinchona plants and pits (thallics) ready for the reception of more have been prepared, 15,880 plants of *C. Succirubra* and 12,480 of *C. Officinalis* have thus been added during the month to the open air plantation, making an addition of about 20 acres. New nursery beds have also been made in favorable places adjacent to the land cleared for extension of the open air plantations, 57,800 plants were placed in nursery beds during the month, 51,000 cuttings of *C. Succirubra* and *C. Officinalis* were made during the month. The temperature towards the end of the month was higher and the air moister than during the first two weeks, but only 1.2 inches of rain fell during February. Spring and with it the growth of the Cinchonas commenced about the end of the month.

Table shewing the temperature of the month at the different plantations.

| PLANTATIONS. | Mean Maximum. | Mean Minimum. | Mean Temperature. | REMARKS. |
|--------------------|---------------|---------------|-------------------|----------|
| 2nd Plantation ... | 50.6 | 41.0 | 45.8 | |
| 4th Ditto ... | 58.3 | 47.1 | 52.7 | |
| Rishap Ditto ... | 66.9 | 40.8 | 53.8 | |

Table shewing the maximum and minimum growth during the month of February 1868.

| NAMES OF SPECIES. | TEESTA. | | RISHAP. | BUNDEE. | |
|--------------------------|---------------------------------------|--|------------------------------|---------------------------------------|--|
| | First Plantation. | Second Plantation. | Third Plantation. | Fourth Plantation. | Fifth Plantation. |
| <i>C. Succirubra</i> .. | $\frac{1}{2}$ to 8 inches | $\frac{1}{2}$ to 2 $\frac{1}{2}$ inches. | 1 to 6 inches. | $\frac{1}{2}$ to 2 inches.. | $\frac{1}{2}$ to 3 $\frac{1}{2}$ inches. |
| <i>C. Mierantha</i> .. | $\frac{1}{2}$ to 1 $\frac{1}{2}$ " .. | " " .. | 1 to 2 " .. | 2 " .. | $\frac{1}{2}$ to 2 " .. |
| <i>C. Officinalis</i> .. | Not measured | Not measured | Not measured. | $\frac{1}{2}$ to 1 $\frac{1}{2}$ " .. | Not measured. |
| <i>C. Calisaya</i> * .. | Ditto .. | Ditto ... | 1 to 2 $\frac{1}{2}$ inches. | $\frac{1}{2}$ to $\frac{1}{2}$ " .. | None. |

Number and distribution of Cinchona Plants in the Government Plantations at Darjeeling on the 1st March 1868.

| NAMES OF SPECIES OF CINCHONA. | Number in permanent Plantations. | Number of stock plants for propagation. | Number of seedlings or rooted cuttings in nursery beds for permanent Plantations. | Number of rooted plants in cutting beds. | Number of cuttings made during the month. | Total number of plants, cuttings, and seedlings. |
|-------------------------------------|----------------------------------|---|---|--|---|--|
| <i>C. Succirubra</i> .. | 2,72,823 | 20,000 | 2,21,685 | 1,92,849 | 23,000 | 7,33,457 |
| <i>C. Calisaya</i> .. | 220 | 4,158 | None. | 6,376 | None. | 10,754 |
| <i>C. Mierantha</i> .. | 5,558 | 1,000 | 8,220 | 15,889 | | 30,667 |
| <i>C. Officinalis</i> and varieties | 1,45,399 | 10,000 | 2,58,856 | 8,08,158 | 25,000 | 7,47,409 |
| <i>C. Paludiana</i> .. | 5,092 | None. | None. | None. | None. | 5,092 |
| Total .. | 4,29,192 | 35,158 | 4,88,761 | 5,23,267 | 51,000 | 15,37,378 |

J. GANNIE,
Head Gardener in Charge.

Modification in the Rules for the Half-yearly Examination of Assistants and others.

FROM H. L. DAMPIER, Esq., Officiating Secretary to the Government of Bengal, to the Secretary to the Government of India, Home Department,—(No. 973T., dated Rampore Bauleah, the 3rd October 1867.)

* REFERRING to the Resolution of the Government of India in the Home Department, dated 15th December 1856, a copy of which was forwarded to this Government with the Under-Secretary's letter No. 1870 of the same date, I am directed to ask the attention of the Governor General in Council to a re-consideration of the decision which was then arrived at, forbidding the practice of passing Assistants in some branches of their examination, subject to further examination in those points in which they have failed.

2. The subjects in which Assistants and others are now examined may be conveniently arranged under three general heads:—

1st.—Law, Criminal and Revenue.

2nd.—The Vernacular of the District in which the examinee is employed.

3rd.—The other Vernacular language.

These three subjects are totally distinct, and the Lieutenant-Governor is strongly of opinion that, when an examinee has once shewn that he has reached the prescribed standard of proficiency in any one of them, he should not be required to submit to examination again in that subject, merely because he has failed in one or both of the others.

3. On the question being raised at the commencement of the year, the Lieutenant-Governor consulted the Commissioners of Divisions, who, without exception, advocated the change which is now proposed.

Mr. Buckland, the Commissioner of the Dacca Division, writes:—"The necessity of passing in the Bengalee language simultaneously with passing the examination in the Revenue and Judicial papers should be done away with. The result of the present system is that the examiners, perhaps unintentionally, lower the standard in Bengali reading and conversation, so that they may not prevent an Officer, who has done well in his question papers, from passing. If it were not made compulsory on the examinees to pass in Bengali simultaneously with the Judicial and Revenue papers, the young Officers would have more time to devote to the acquisition of the language, and at the same time they would have the strongest inducement to obtain a knowledge of it, as they would not receive any increase of pay until they had passed."

Mr. Money, the Commissioner of the Bhaugulpore Division, says:—"According to the present system each examinee must pass at one and the same time in the laws, Judicial and Revenue, and in the languages. A man's papers may be first class in Judicial or in Revenue, or in both, but if he falls short by a mark or two in one of the four tests of his knowledge in languages, translation, dictation—colloquial and reading he has, six months later, to go through the entire ordeal again. The result is, as I have frequently observed, intense annoyance and discouragement. Men get plucked in subjects in which they passed well a year or more before. I would not be supposed to say one word against the principle of examination of the Junior Branches of the Service. I am confident that their efficiency is promoted thereby, but I think all the good might be retained and the evil effects avoided if men were allowed to pass in one subject, instead of being obliged to pass in all at once."

"The argument that a man would cram up a subject, discharge himself of it, and forget it while getting up a second, has, I submit, no force in India, for whatever subject a man passed in, whether law or language, that subject will come before him in his daily Office work the day after the examination and every other day during his official life. For all practical purposes, the knowledge once acquired cannot again be lost to him, but he would have more time and more energy to devote to the subject in which he is still deficient, and he would much sooner, than under the present system, exercise higher powers, be vested with greater responsibilities, and give more useful service in return for the pay he receives."

Mr. Campbell, the Commissioner of the Rajshahye Division, says:—"If a person can read and speak Bengali in April sufficiently well to pass, the chances

are that he can do the same in November following without extra study, but this is not so as regards the Revenue and Judicial papers. So far as these are concerned, the whole thing is simple cram, and probably few Officers, six months or even much less after they have passed in them, could without fresh and arduous cram pass again; nor can I see any harm in this. After all the chief use of such papers is to ensure Officers knowing at once where to lay their hands on the laws and rules in force, for no Officer, of whatever standing he may be, works without his Penal Code and Act X., &c., by his side."

4. The Lieutenant-Governor desires me to observe that the examination in law cannot be passed without the possession at the time of such an accurate knowledge of minutiae as cannot possibly be retained without unintermitting study. The Lieutenant-Governor is fully sensible of the advantage of requiring a Junior Officer early in his career to prove that he has acquired such a minute knowledge of the law and the system which he has to administer, because the *substantial and practical* parts of the knowledge once so acquired remain impressed upon the mind and are kept up by the constant requirements for their exercise in the course of his daily avocations. But though it is thus proper that the minutiae, which are required for an examination should be thoroughly mastered once in an Officer's career, the Lieutenant-Governor cannot admit that repeated study for several successive examinations has the effect of leaving a larger residuum of permanent and practical knowledge on the mind; and it therefore follows that every hour which a young Officer is obliged to devote to keeping up his knowledge of law to examination pitch after that has once been reached might be more usefully employed in studying a subject which the examinee has not mastered.

5. The same considerations apply to the case of the Vernacular, though perhaps not with the same force, for, as observed by Mr. Campbell, a knowledge of the Vernacular once mastered should be kept up without much trouble.

6. The Lieutenant-Governor therefore desires earnestly to recommend an alteration in the present rules for the examination of Assistants to this extent, that an examinee who has once passed in any one of the three broad subjects stated in paragraph 2 be not required to pass in that subject again by the same standard.

7. The Lieutenant-Governor would further recommend that, when an Officer has passed, as suggested above, in Law and in the Vernacular of the District in which he has been employed, he should be vested with higher powers so long as he is employed in a District in the Vernacular of which he has passed. The higher powers would not carry either increase of salary or promotion, and they would be discontinued in the event of the Officer being transferred to a District in the Vernacular of which he had not passed.

8. The Lieutenant-Governor is convinced that the present rule postponing the increase of powers till the examination has been fully passed in all its branches, deprives the Government of valuable agency at a time when it is much needed, without attaining any compensating benefit. An Officer who passed by the prescribed standard in Law and the Vernacular of the District in which he is employed, is not less qualified for the exercise of all powers in that District than he would be if he had also passed in the other Vernacular which is spoken in another part of the country. The present restriction seems to the Lieutenant-Governor to be merely artificial, and he would wish to see it at once removed. The incentive to study the second language would be quite as strong as it now is if promotion and increase of salary were withheld until the examination has been passed in *all* its branches.

9. On another point on the present system the Lieutenant-Governor would wish to make an immediate change. The Commissioners in the Lower Provinces are unanimous in agreeing with the Board of Examiners that the present test of writing decisions of selected cases at the time of examination, as prescribed by the 12th of the revised Rules is useless, and a mere waste of the time of all concerned. Under this rule a decision is written on depositions read out in the absence of the parties and their witnesses, without the advantage of the arguments of the pleaders and amidst the constant interruptions which are unavoidable when a large number of examinees (some of whom have a very imperfect knowledge of the Vernacular) are taking notes

from the reading of one Mohurir. Experience has shewn that decisions written under such circumstances are perfectly valueless as a test of the capacity of the writer for dealing with arguments and evidence. In place of this test the Lieutenant-Governor would prefer to see a more rigid enforcement of the existing rule, requiring a detailed report from the District Officer on the qualifications of each examinee and the manner in which he has performed his duties since the previous examination. I am to request the approval of the Government of India to the adoption of these changes.

From E. C. BAYLEY, Esq., Secretary to the Government of India, Home Department, to the Officiating Secretary to the Government of Bengal,—(No. 1853, dated Fort William, the 17th April 1868.)

I AM directed to acknowledge the receipt of your letter No. 9737, dated the 3rd October last, asking for a re-consideration of the orders forbidding the practice of allowing Assistants and others to pass in separate branches of their examination, subject to further examinations in those branches in which they fail.

2. In reply I am directed to state that, after consulting the other Local Governments and Administrations, and fully considering their opinions, the Governor General in Council approves of the proposal of the Bengal Government

* 1. Law.—Criminal and Revenue.

2. Vernacular of the District in which the examinee is employed.

3. The other vernacular language.

that an Assistant having once passed in any one of the subjects mentioned in the 2nd paragraph of your letter* should not be required to pass

in that subject again by the same standard.

3. The Governor General in Council also approves of the proposal that an Officer, having passed in Law and in the Vernacular of his District, should be vested with higher powers, (but without increase of pay or promotion) so long as he is employed in that District, or in any other where the same language constitutes the Vernacular. This rule, it would seem, can only be applied to the Lower Provinces, as there alone are Assistants required to pass in two languages.

4. With regard to the proposal to abolish the test of writing decisions of selected cases at the time of examination, I am directed to state that, although the Lieutenant-Governor's views are hardly in accordance with the weight of opinion expressed by the heads of other Governments and Administrations, the matter is one in which the Government of India does not wish to fetter the Lieutenant-Governor's discretion, and that His Honor can dispose of the question as he may think best.

From H. L. HARRISON, Esq., Junior Secretary to the Government of Bengal, to the Secretary to the Sub-Committee of the Board of Examiners,—(No. 1754, dated Fort William, the 22nd April 1868.)

WITH reference to paragraph 12 of the letter from this Office

* To Secretary to the Government of India, No. 9737, dated 3rd October 1867.

From Secretary to the Government of India, No. 1853, dated 17th April 1868.

No. 869, dated the 2nd ultimo, I am directed to forward herewith a copy of a correspondence* with the Government of India, in the Home Department, on the subject of the revision of the system of Half-yearly Examinations of Assistants and others.

2. I am to request that the Sub-Committee will be so good as to act upon the sanction communicated in paragraph 2 of the letter from the Secretary to the Government of India in the present examination, and to pass all

* 1. Law, Criminal and Revenue.

2. Vernacular of the District.

3. The other Vernacular language.

Officers who may succeed in one or more of the three specified branches subject to further examination by the

same standard in those branches only in which they may fail.

3. In the letter from this Office No. 972T., dated the 3rd October last, the Lieutenant-Governor has already sanctioned, in anticipation of the approval of the Government of India, the writing of a decision being dispensed with, and in paragraph 12 of the letter of the 2nd March the Sub-Committee were requested to give effect to that sanction in the first Half-yearly Examinations of 1868. No further instructions are therefore now necessary with reference to paragraph 4 of the present letter from the Government of India.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 22nd to 30th April 1868.

| Month. | Date. | Reduced Reading of Barometer at 10 A. M. | THERMOMETER. | | Daily Range of the Temperature. | Mean Temperature for the day. | Mean Wet Bulb. | Computed Mean Dew-point. | Mean Degree of Humidity for the day. | Prevailing Direction of Wind during the day. | Rain. | Max. Pressure of Wind. | Daily Velocity of Wind. | GENERAL REMARKS. |
|--------|-------|--|------------------|-----------------|---------------------------------|-------------------------------|----------------|--------------------------|--------------------------------------|--|---------|------------------------|-------------------------|---|
| | | | Highest Reading. | Lowest Reading. | | | | | | | | | | |
| | | Inches. | ° | ° | ° | ° | ° | ° | | | Inches. | ° | Miles. | |
| April | 22nd | 29.705 | 97.8 | 80.0 | 17.8 | 88.0 | 78.4 | 72.5 | 0.81 | Variable | ... | ... | 141.3 | Scattered cirri and clear. Light rain at 1½ p. m. |
| | 23rd | 29.818 | 98.0 | 80.9 | 18.1 | 87.8 | 78.9 | 70.7 | .69 | S by E & S by W | ... | 0.2 | 125.4 | Chiefly clear. Brisk wind at 8½ p. m. Light rain at 10 A. M. |
| | 24th | 29.854 | 98.5 | 79.0 | 20.5 | 82.6 | 77.1 | 73.2 | .74 | S S W | 0.18 | 24.8 | 142.4 | Clear. Scattered cumuli and overcast. High wind from 1½ A. M. to 8½ p. m. Thunder and Lightning at 5 and 8 p. m. Slight from 5 to 8 p. m. |
| | 25th | 29.846 | 98.7 | 82.8 | 17.7 | 73.8 | 70.5 | 68.4 | .85 | S S E & S E S | 2.47 | 31.0 | 221.3 | Scattered clouds and overcast. Storm from 12½ to 2 p. m. Thunder at 1 p. m. Rain from 1 to 5 p. m. |
| | 26th | 29.868 | 94.5 | 88.4 | 18.1 | 76.8 | 72.1 | 68.9 | .78 | W by S & E S E | ... | ... | 136.3 | Scattered cumuli and clear. |
| | 27th | 29.812 | 91.0 | 75.0 | 18.0 | 82.4 | 77.0 | 73.1 | .74 | S by E & S | ... | ... | 40.7 | Clear and scattered cumuli. |
| | 28th | 29.714 | 91.5 | 80.0 | 11.5 | 85.3 | 81.3 | 78.5 | .81 | S & S S W | ... | 3.1 | 172.9 | Chiefly scattered cumuli. Brisk wind from 8½ A. M. to 4 p. m. and from 8½ to 9½ p. m. |
| | 29th | 29.689 | 97.4 | 82.5 | 14.9 | 86.3 | 83.2 | 80.1 | .77 | S by W, S S W & S | ... | 1.0 | 179.9 | Clear and "soda" from 3. Brisk wind at 7½ A. M. and from 5½ to 7 p. m. |
| | 30th | 29.790 | 98.5 | 81.6 | 17.0 | 88.7 | 81.4 | 77.0 | .69 | S & S by E | ... | 1.6 | 311.3 | Chiefly clear. Brisk wind from 8½ to 11½ p. m. |

The mean Temperature and the mean Wet Bulb are derived from the twenty-four hourly Observations made during the day.

The Dew-point is computed with the Greenwich constants. The figures in column ten represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1 foot 2 inches, and that of the Anemometer 70 feet 10 inches, above the level of the ground. The velocity of wind, as indicated by Robinson's Anemometer, is registered from noon to noon.

| | | | |
|---|-----------------------|-----|------|
| The extreme variation of Temperature during the past nine days | ... | ... | 30.1 |
| The Max. Temperature during the past nine days | ... | ... | 98.5 |
| The Max. Temperature during the corresponding period of the past year | ... | ... | 99.6 |
| The mean humidity during the past nine days | ... | ... | 0.73 |
| The mean humidity during the corresponding period of the past year | ... | ... | 0.67 |
| Inches. | | | |
| The total fall of rain from 22nd to 30th... | { by lower rain gauge | ... | 2.66 |
| | { by Anemometer gauge | ... | 1.55 |
| Ditto ditto from 22nd to 30th, average of fourteen previous years | ... | ... | 0.96 |
| Ditto ditto between the 1st January and the 30th ultimo | ... | ... | 5.85 |
| Ditto ditto during the corresponding period of the past year | ... | ... | 3.21 |

The difference of 1.10 inches, which has been very carefully observed between the Lower and the Anemometer gauges, can only be accounted for by the strong force of the wind during the storm driving the rain away from the Receiver at the Upper elevation.

The 4th May 1868.

GOPERNATH SEN,
In charge of the Observatory.

Meteorological Report up to 21st April 1868.

| STATION. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | WEATHER. |
|-------------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|-------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| CALCUTTA. | 15th | 10 | 29.824 | 87 | 78 | 65 | S | ... | ... | Scuds from S. |
| | | 16 | 29.744 | 80 | 80 | 63 | S S W | ... | ... | Scattered cumuli and scuds from S. |
| | 16th | 10 | 29.819 | 88 | 80 | 60 | S W | ... | ... | Scuds from S. |
| | | 16 | 29.870 | 80 | 80 | 63 | S | ... | ... | Scattered cumuli. |
| | 17th | 10 | 29.870 | 88 | 71 | 57 | S | ... | 0.05 | Thin cirri. |
| | | 16 | 29.743 | 89 | 78 | 50 | S W | ... | ... | Stratop. |
| | 18th | 10 | 29.832 | 87 | 80 | 72 | S by W | ... | ... | Clear. |
| | | 16 | 29.707 | 83 | 80 | 64 | S | ... | ... | Clear. |
| | 19th | 10 | 29.784 | 88 | 83 | 76 | S by W | ... | ... | Scuds from S. W. |
| | | 16 | 29.838 | 84 | 83 | 81 | S S | ... | ... | Clear. |
| | 20th | 10 | 29.744 | 89 | 83 | 78 | S S W | ... | ... | Cirrocumuli. |
| | | 16 | 29.616 | 92 | 85 | 87 | S | ... | ... | Stratop. |
| SAGOR LANE. | 21st | 10 | 29.781 | 88 | 82 | 75 | S S E | ... | ... | Scattered cirri. |
| | | 16 | 29.619 | 98 | 74 | 98 | W by N | ... | ... | ... |
| | 15th | 9-30 | 29.751 | 85 | 82 | 87 | S W | Strong | ... | Cloudy. |
| | | 16 | 29.705 | 87 | 82 | 79 | S W | Strong | ... | Ditto. |
| | 16th | 9-30 | 29.710 | 84 | 81 | 79 | S W | Strong | ... | Few scattered clouds. |
| | | 16 | 29.615 | 87 | 81 | 74 | S W | Strong | ... | Ditto ditto. |
| | 17th | 9-30 | 29.780 | 89 | 75 | 70 | S W | Violent | ... | Sky overcast with clouds. |
| | | 16 | 29.735 | 87 | 78 | 61 | S W | Strong | ... | Scattered clouds. |
| | 18th | 9-30 | 29.753 | 85 | 80 | 70 | S W | Moderate | ... | Clear. |
| | | 16 | 29.677 | 87 | 81 | 76 | S W | Moderate | ... | A few scattered clouds. |
| | 19th | 9-30 | 29.701 | 85 | 81 | 83 | S W | Strong | ... | Scattered clouds. |
| | | 16 | 29.605 | 87 | 83 | 84 | S W | Light | ... | Ditto. |
| CHITTAGONG. | 20th | 9-30 | 29.671 | 81 | 82 | 87 | S W | Moderate | ... | Ditto. |
| | | 16 | 29.576 | 86 | 82 | 87 | S W | Light | ... | Cloudy. |
| | 21st | 9-30 | 29.579 | 87 | 81 | 75 | W | Light | ... | Ditto. |
| | | 16 | 29.509 | 88 | 83 | 43 | W | Light | ... | Ditto. |
| | 16th | 9-30 | 29.784 | 78 | 71 | 86 | E | Light | 1.00 | Clear. |
| | | 16 | 29.739 | 82 | 73 | 82 | S by E | Light | ... | Scattered Cumuli, hazy. |
| | 16th | 9-30 | 29.770 | 81 | 74 | 80 | S | Moderate | ... | Cumuli. |
| | | 16 | 29.738 | 83 | 79 | 83 | S | Light | ... | Scattered cumuli, cumuli have |
| | 17th | 9-30 | 29.820 | 75 | 73 | 77 | S | Light | ... | been northward. |
| | | | | | | | | | ... | A sudden violent gale from S. and S. W. commenced at 20-40 last night, accompanied by heavy rain. It blew very strongly for about half an hour, but the gale did not entirely cease till late at night. The barometer stood high before and during the gale. This morning the rain gauge was found upset and broken. |
| | 18th | 16 | 29.794 | 82 | 78 | 82 | S S W | Moderate | ... | Cloudy horizon. |
| | | 9-30 | 29.784 | 82 | 74 | 81 | S S W | Moderate | ... | Cirrocumuli. |
| AGRA. | 16th | 16 | 29.684 | 81 | 79 | 83 | S | Light | ... | Cloudy horizon. |
| | | 9-30 | 29.754 | 83 | 79 | 83 | S | Moderate | ... | Unsteady wind, cumuli. |
| | 17th | 16 | 29.661 | 84 | 79 | 71 | S W | Light | ... | Cumuli drifting towards N. |
| | | 9-30 | 29.716 | 86 | 80 | 70 | S W | Moderate | ... | Cumuli drifting northward. |
| | 18th | 16 | 29.546 | 81 | 80 | 70 | S | Light | ... | Heavy towards S. S. W. & W. |
| | | 9-30 | 29.608 | 81 | 80 | 81 | S W | Moderate | ... | Cumuli drifting northward. |
| | 19th | 16 | 29.569 | 85 | 81 | 68 | S | Moderate | ... | Upper strati, cirrocumuli, lower strati cumuli moving northward. |
| | | 9-30 | 29.602 | 80 | 75 | 74 | S E | Light | 0.42 | ... |
| | 16th | 16 | 29.511 | 88 | 78 | 62 | S W | Light | ... | Fine. |
| | | 9-30 | 29.689 | 81 | 75 | 61 | S E | Light | ... | ... |
| | 17th | 16 | 29.814 | 87 | 80 | 73 | W N W | Light | ... | ... |
| | | 9-30 | 29.809 | 85 | 77 | 68 | S | Light | ... | ... |
| MURREE. | 16th | 16 | 29.846 | 88 | 80 | 75 | W | Light | ... | Fine. |
| | | 9-30 | 29.889 | 85 | 79 | 75 | S W | Light | ... | ... |
| | 17th | 16 | 29.816 | 86 | 79 | 79 | W | Light | ... | ... |
| | | 9-30 | 29.879 | 85 | 79 | 75 | S E | Light | ... | Heavy clouds to the N. |
| | 18th | 16 | 29.704 | 87 | 80 | 72 | W | Light | ... | Partial cloudy. |
| | | 9-30 | 29.859 | 86 | 80 | 79 | S W | Light | ... | Cirrocumuli to N. and N. E. |
| | 19th | 16 | 29.774 | 87 | 80 | 72 | S W | Light | ... | Cloudy. |
| | | 9-30 | 29.834 | 87 | 81 | 78 | S W | Light | ... | Heavy to the N. and N. E. |
| | 20th | 16 | 29.764 | 87 | 82 | 79 | S W | Light | 0.17 | Rain with thunder and lightning at 10-15. |
| | | 9-30 | 29.854 | 87 | 78 | 88 | S by W | Light | ... | Hazy, clear sky. |
| | 16th | 16 | 29.786 | 90 | 79 | 63 | S by E | Fresh | ... | Intermittent to N. N. E. and S. W., unsteady wind, squally and misty. |
| | | 9-30 | 29.873 | 88 | 80 | 69 | S by W | Light | ... | Scattered cirri to N. N. E. & S. E. horizon and hazy. |
| MURREE. | 16th | 16 | 29.781 | 90 | 79 | 60 | S | Fresh | ... | Cirri, misty and overcast, unsteady wind. |
| | | 9-30 | 29.853 | 88 | 79 | 65 | S by E | Moderate | ... | Overcast with cirri and strati since morning and overcast, unsteady wind. |
| MURREE. | 17th | 16 | 29.863 | 85 | 71 | 67 | S by W | Moderate | ... | Squally all day, covered with strati. |
| | | 9-30 | 29.863 | 85 | 71 | 67 | S by W | Moderate | ... | ... |

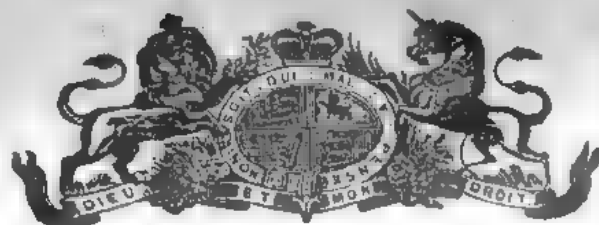
| STATION. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity at 100. | WIND. | | Rain. | WEATHER. |
|---------------------|--------|-------|---------------------------|--------------|------|------------------|------------|-----------|-------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| CUTTACK—(Continued) | 18th | 9-30 | 29.836 | 87 | 76 | 68 | S W by W | Light | ... | Clear. |
| | 18 | 18 | 29.742 | 89 | 79 | 64 | S | Fresh | ... | Scattered cirri to S. E. and S. W., cumulostrati to N. N. W. A misty horizon, squalls from S. E. to S. W. since 11 hours. |
| | 19th | 9-30 | 29.846 | 90 | 81 | 66 | S | Light | ... | Overcast with cirri. |
| | 19 | 18 | 29.857 | 92 | 80 | 67 | S | Light | ... | Cirri, cirrostrati and misty horizon. |
| | 20th | 9-30 | 29.797 | 91 | 81 | 63 | W | Light | ... | A few scattered thin cirri, hazy and calm. |
| MADRAS. | 18th | 9-30 | 29.674 | 84 | 74 | 36 | E by N | Fresh | ... | A dust-storm from N. N. E. at 15.30 hours, cirri cumulostrati & nimbi, lightning & thunder with very few drops of rain. |
| | 21st | 9-30 | 29.620 | 84 | 71 | 23 | N by E | Light | ... | Cirrocumuli, threatening appearance to S. W. & eultry. |
| | 18 | 18 | 29.686 | 84 | 71 | 29 | S W by W | Light | ... | Cirrocumuli, cirri and overcast all day. |
| | 18th | 10 | 29.873 | 80 | 77 | 60 | S E by S | 11° | ... | Passing clouds. |
| | 18 | 18 | 29.749 | 83 | 80 | 69 | S E | 16° | ... | Clear. |
| BOMBAY. | 16th | 10 | 29.877 | 86 | 79 | 69 | S S E | 11° | ... | Passing clouds. |
| | 16 | 16 | 29.774 | 88 | 77 | 61 | S E | 14° | ... | Clear. |
| | 17th | 10 | 29.813 | 86 | 77 | 66 | S E by S | 20° | ... | Passing clouds. |
| | 16 | 16 | 29.802 | 88 | 79 | 66 | S E | 13° | ... | Fine with hazy. |
| | 18th | 10 | 29.806 | 80 | 78 | 60 | S E | 8° | ... | Nearly cloudy. |
| ROOPEE. | 18th | 10 | 29.747 | 87 | 79 | 61 | S E | 11° | ... | Light haze. |
| | 18 | 18 | 29.608 | 91 | 78 | 53 | S | 11° | ... | Fine winds, light clouds. |
| | 18 | 18 | 29.758 | 87 | 78 | 65 | S E | 15° | ... | Fine. |
| | 20th | 10 | 29.803 | 86 | 80 | 49 | S W | 10° | ... | Light clouds. |
| | 16 | 16 | 29.708 | 80 | 80 | 61 | S E | 14° | ... | Fine. |
| DARJEELING. | 21st | 10 | 29.847 | 86 | 80 | 71 | S W by W | 0° | ... | Light clouds. |
| | 18 | 18 | 29.702 | 80 | 80 | 68 | S E | 9° | ... | Cloudy. |
| | 18th | 10 | 29.813 | ... | ... | ... | E | Strong | ... | Strati. |
| | 18 | 18 | 29.717 | ... | ... | ... | Calm | ... | ... | Cirri, strati. |
| | 16th | 10 | 29.715 | ... | ... | ... | N E | Strong | ... | Cirri, strati. |
| DARJEELING. | 16 | 16 | 29.443 | ... | ... | ... | N W | ... | ... | Strati, cirrostrati. |
| | 17th | 10 | 29.877 | ... | ... | ... | N W | Moderate | ... | Ditto. |
| | 16 | 16 | 29.406 | ... | ... | ... | N W | ... | ... | Strati. |
| | 18th | 10 | 29.501 | ... | ... | ... | N W | ... | ... | Ditto. |
| | 16 | 16 | 29.427 | ... | ... | ... | W | ... | ... | Cirri, cirrostrati. |
| DARJEELING. | 18th | 10 | 29.532 | ... | ... | ... | Calm | ... | ... | Cirri, cirrocumuli, strati. |
| | 16 | 16 | 29.401 | ... | ... | ... | W | Light | ... | Ditto, cirrostrati. |
| | 20th | 10 | 29.634 | ... | ... | ... | N W | ... | ... | Cumulostrati, strati. |
| | 16 | 16 | 29.471 | ... | ... | ... | S W | ... | ... | Strati. |
| | 21st | 10 | 29.645 | ... | ... | ... | S W | Light | ... | ... |
| DARJEELING. | 18th | 9-30 | 29.866 | 92 | 67 | 21 | S E | ... | ... | Drisk S. E. wind from 8 h., becoming a hot wind as the day advanced, sky overcast with thin clouds, thunder and lightning at 20 & 23 h. wind N. E. |
| | 16 | 16 | 29.780 | 90 | 71 | 24 | S E | ... | ... | Few drops of rain at 4 h., drisk N. W. wind at 8 h. lasting till 1', dying to a calm at 16. |
| | 10th | 9-30 | 29.031 | 63 | 64 | 32 | N E | ... | ... | Cirri, sultry day, gentle wind at 16 hours. |
| | 17th | 9-30 | 29.817 | 83 | 67 | 20 | E | ... | ... | Cirri in sky all day. |
| | 16 | 16 | 29.822 | 83 | 70 | 27 | Calm | ... | ... | ... |
| DARJEELING. | 18th | 9-30 | 29.853 | 88 | 70 | 22 | W | ... | ... | ... |
| | 16 | 16 | 29.701 | 98 | 70 | 27 | Calm | ... | ... | ... |
| | 18th | 9-30 | 29.802 | 96 | 64 | 16 | N W | ... | ... | ... |
| | 16 | 16 | 29.883 | 92 | 67 | 21 | S W | ... | ... | ... |
| | 20th | 9-30 | 29.753 | 101 | 60 | 18 | N W | ... | ... | ... |
| DARJEELING. | 18th | 9-30 | 29.681 | 94 | 66 | 21 | N E | ... | ... | ... |
| | 16 | 16 | 29.747 | 83 | 66 | 22 | S W | ... | ... | ... |
| | 21st | 9-30 | 29.804 | 85 | 66 | 32 | S E | ... | ... | ... |
| | 16 | 16 | 29.842 | 67 | 62 | 74 | N E | ... | ... | ... |
| | 16th | 9-30 | 29.300 | 57 | 56 | 92 | N E | Light | 0.05 | Misty. |
| DARJEELING. | 18 | 18 | 29.243 | 69 | 58 | 72 | W | Light | ... | Scattered cumuli. |
| | 16th | 9-30 | 29.269 | 58 | 56 | 57 | W | Light | ... | Misty. |
| | 16 | 16 | 29.100 | 63 | 51 | ... | W | Moderate | 0.03 | Overcast with nimbi, heavy rain since 14 hours. |
| | 17th | 9-30 | 29.253 | 66 | 55 | 93 | N | Light | 0.05 | Cumuli, Nimbi. |
| | 16 | 16 | 29.200 | 58 | 58 | 87 | W | Light | ... | Dense misty. |
| DARJEELING. | 18th | 9-30 | 29.248 | 57 | ... | 93 | S E | Light | ... | Misty. |
| | 16 | 16 | 29.178 | 58 | 57 | 88 | W by N | Light | ... | Ditto. |
| | 10th | 9-30 | 29.237 | 60 | 57 | ... | S E | Light | ... | Rather misty. |
| | 16 | 16 | 29.167 | 61 | 60 | 84 | W | Light | ... | Misty. |
| | 20th | 9-30 | 29.243 | 60 | ... | 91 | S E | Light | ... | Rather misty. |
| DARJEELING. | 18 | 18 | 29.147 | 63 | 59 | 77 | W | Moderate | ... | Scattered cumuli, nimbi. |
| | 21st | 9-30 | 29.217 | 61 | 59 | 88 | S E | Light | ... | Rather misty. |
| | 16 | 16 | 29.123 | 62 | 57 | 71 | W | Light | ... | Scattered cumuli, rather heavy to S. W. |

* Velocity in miles per hour.

| STATIONS. | April. | Hour. | Barometer reduced to 32°. | THERMOMETER. | | Humidity Sat. = 100. | WIND. | | Rain. | WEATHER. |
|--------------|--------|-------|---------------------------|--------------|------|----------------------|------------|-----------|---------|--|
| | | | | Dry. | Wet. | | Direction. | Velocity. | | |
| | | | Inches. | ° | ° | | | | Inches. | |
| Dacca. | 15th | 9-30 | 29.819 | 80 | 78 | 79 | ESE | Light | ... | Cloudy. |
| | 16 | 10 | 29.719 | 83 | 79 | 87 | SSW | Light | ... | Threatening. |
| | 16th | 9-30 | 29.780 | 81 | 79 | 81 | S | Moderate | 0.4 | Cloudy. |
| | 16 | 10 | 29.633 | 84 | 81 | 87 | S | Strong | ... | Partially cloudy. |
| | 17th | 9-30 | 29.818 | 78 | 75 | 80 | SE | Light | 0.7 | Clear. |
| | 16 | 10 | 29.885 | 83 | 79 | 83 | SW | Light | ... | Partially cloudy. |
| | 18th | 9-30 | 29.768 | 82 | 80 | 91 | SSW | Strong | ... | Ditto. |
| | 16 | 10 | 29.820 | 85 | 81 | 83 | SSW | Strong | ... | Clear. |
| | 19th | 9-30 | 29.705 | 83 | 81 | 91 | S | Strong | ... | Cloudy. |
| | 16 | 10 | 29.600 | 85 | 83 | 91 | S | Strong | ... | Threatening. |
| Patna. | 20th | 9-30 | 29.712 | 84 | 82 | 91 | SSW | Light | 0.3 | Cloudy. |
| | 16 | 10 | 29.545 | 86 | 81 | 91 | S | Strong | ... | Partially cloudy. |
| | 21st | 9-30 | 29.643 | 81 | 83 | 91 | SSW | Strong | ... | Cloudy. |
| | 16 | 10 | 29.535 | 87 | 83 | 81 | SSW | Moderate | ... | Clear. |
| | 16th | 9-30 | 29.647 | 81 | 78 | 74 | E | ... | ... | East wind; a case of cholera. |
| | 16 | 10 | 29.619 | 100 | 77 | 83 | E | ... | ... | |
| | 16th | 9-30 | 29.673 | 86 | 87 | 24 | SE | ... | ... | |
| | 16 | 10 | 29.460 | 94 | 70 | 25 | NE | ... | ... | A blast from N. with dust. |
| | 15th | 10 | 29.894 | 89 | 72 | 86 | | | | |
| | 16 | 10 | 29.161 | 90 | 75 | 47 | | | | |
| Moujete. | 16th | 10 | 29.115 | 89 | 78 | 59 | | | | |
| | 16 | 10 | 29.625 | 84 | 70 | 37 | | | | |
| | 17th | 10 | 29.453 | 89 | 75 | 67 | | | | |
| | 16 | 10 | 29.515 | 90 | 76 | 29 | | | | |
| | 18th | 10 | 29.031 | 84 | 74 | 35 | | | | |
| | 16 | 10 | 29.493 | 98 | 75 | 30 | | | | |
| | 20th | 10 | 29.544 | 87 | 76 | 55 | | | | |
| | 16 | 10 | 29.424 | 103 | 76 | 26 | | | | |
| | 20th | 10 | 29.697 | 85 | 76 | 64 | | | | |
| | 16 | 10 | 29.403 | 88 | 73 | 24 | | | | |
| Falan Point. | 21st | 10 | 29.963 | 90 | 60 | 30 | | | | |
| | 16 | 10 | 29.302 | 100 | 70 | 29 | | | | |
| | 19th | 9-30 | 29.739 | 85 | 81 | 83 | SW | ... | ... | Strong weather and hazy. |
| | 16 | 10 | 29.620 | 85 | 81 | 83 | SW | ... | ... | Ditto weather. |
| | 13th | 9-30 | 29.739 | 86 | 81 | 83 | SW | ... | ... | Ditto and hazy. |
| | 16 | 10 | 29.620 | 86 | 83 | 83 | SW | ... | ... | Ditto ditto. |
| | 14th | 9-30 | 29.760 | 85 | 82 | 87 | SW | ... | ... | Ditto ditto. |
| | 16 | 10 | 29.669 | 86 | 82 | 87 | SW | ... | ... | Blowing very strong and hazy. |
| | 15th | 9-30 | 29.749 | 85 | 82 | 87 | SW | ... | ... | Strong weather and very hazy. |
| | 16 | 10 | 29.647 | 86 | 81 | 87 | SW | ... | ... | Ditto ditto. |
| Falan Point. | 16th | 9-30 | 29.779 | 85 | 82 | 87 | SW | ... | ... | Strong breezes and very hazy. |
| | 16 | 10 | 29.644 | 87 | 83 | 83 | SW | ... | ... | Ditto and hazy. |
| | 17th | 9-30 | 29.876 | 82 | 80 | 91 | ENE | ... | ... | Squally & ditto with rain, heavy thunder and lightning all round the horizon with rain at 8 hours. |
| | 16th | 16 | 29.737 | 82 | 78 | 82 | S | ... | ... | Strong breezes and fine. |
| | 16th | 9-30 | 29.774 | 83 | 80 | 87 | SW | ... | 0.06 | Ditto and hazy. |
| | 16 | 10 | 29.081 | 84 | 81 | 87 | SW | ... | ... | Ditto and very hazy. |

BENGAL SECRETARIAT,
The 1st May 1868. }

HENRY F. BIANFORD,
Meteorological Reporter to Govt. of Bengal.



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, MAY 13, 1868.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on a payment of six Rupees per annum if delivered in Calcutta, or twelve Rupees if sent by Post.

Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday, May 9th, 1868.

Present:

HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, *Presiding.*

H. L. DAMPIER, Esq.,
E. T. TREVOR, Esq.,
A. R. THOMPSON, Esq.,
S. S. HOGG, Esq.,
KOOMAR HARENDRA KRISHNA, RAI BAHADOOR.
BABOO RAMANATH TAGORE.

H. KNOWLES, Esq.,
BABOO PEARY CHAND MITTRA.
T. ALCOCK, Esq.,
H. H. SUTHERLAND, Esq.,
KOOMAR SATYANUND GHOSAL.

SURVEY OF STEAM VESSELS.

Mr. Hogg moved that the Bill "to make further provision for the Survey of Steam Vessels plying within the Provinces subject to the Lieutenant-Governor of Bengal," be passed.

The motion was agreed to.

LIMITATION OF APPEALS UNDER REGULATION VII. OF 1822.

Mr. Trevor moved that the Bill "to amend the law respecting Appeals in cases under Regulation VII. of 1822," be read in Council. The Bill, he said, was a simple one. It would interfere with no power that now existed, but would merely shorten the period for appealing from the Commissioner to the Board of Revenue and from the Collector to the Commissioner, from three months to one month. It had been suggested to him to make one or two verbal alterations, and he thereupon proposed, instead of passing the Bill to-day and intended, to refer the Bill to a Select Committee. He did not know that any further alterations were necessary; and would therefore now read the Bill be read in Council.

The motion was agreed to, and the Bill referred to a Select Committee consisting of Mr. Thompson,

Baboo Ramanath Tagore, and the Mover, with instructions to report within five days.

DISTRICT MUNICIPAL IMPROVEMENT.

KOOMAR HARENDRA KRISHNA moved for leave to bring in a Bill to amend the District Municipal Improvement Act. The Statement of objects and reasons which had been circulated to all the Members along with the Bill had, he hoped, sufficiently explained his motive and the expediency of the measure. Act III. of 1864, otherwise called the District Municipal Improvement Act, had but two Sections as regards the assessment of houses, lands, and buildings: he alluded to Sections 26 and 27. In neither of those Sections was there any provision made with regard to unoccupied houses and lands, and the consequence was that from unoccupied houses the full rate of assessment was realised as in the case of occupied houses. This procedure had caused considerable dissatisfaction. Not long ago a memorial, numerously signed by the rate-payers of the Suburbs of Calcutta, had been presented to His Honor the Lieutenant-Governor, complaining of the defective state of the law and of the hardships they were put to in having had to pay the full amount of the tax for unoccupied

houses. His Honor after a careful enquiry, had observed as follows:—

"As to the second complaint, viz., the imposition of the assessment on unoccupied houses, the Lieutenant-Governor agrees with you that the District Municipal Act in its present shape is defective in requiring the full assessment of such houses, and giving the Commissioners no power of remitting any part of such assessment. The Lieutenant-Governor will, if any changes in this law be brought forward before His Honor's Legislative Council during the ensuing Sessions, be prepared to recommend the introduction into the amended Act of the more equitable provision of the Calcutta Act (Section 58, Act VI. of 1843.) by which a moiety of the assessment is remitted during the time that houses remain vacant."

The Bill he intended to bring in was but a transcript of Section 58 of the Calcutta Municipal Act, by which, as the Council was aware, only a moiety of the assessment was collected in such cases. The Bill proposed to grant exactly the same boon to the inhabitants of the Mofussil as that enjoyed by the people of Calcutta.

The motion was agreed to.

KOOMAR HARENDRA KRISHNA said, considering that the Sessions had already far advanced, and as it was desirable to make the provision he had pointed out in the substantive law before the Sessions closed, he begged to apply that the Rules of the Council be suspended in order that the Bill might be carried through its subsequent stages forthwith.

The President having declared the Rules suspended, the Bill was read in Council, and taken into consideration in order to the settlement of the Classes.

Section 1 having been read—

KOOMAR HARENDRA KRISHNA moved the insertion of the words "and also of the re-occupancy" after the word "vacancy" in the 11th line.

MR. DAMPIER moved by way of amendment that the following words be added to the Section:—

"to the end of the quarter then current. Provided also that no notice of vacancy given under this Section shall have effect beyond the end of the quarter in which it may be given, unless a similar notice of continued vacancy be given within the first fifteen days of the following quarter."

The amendment was carried, and the Section as amended agreed to.

Section 2 and the Preamble and Title were agreed to.

KOOMAR HARENDRA KRISHNA postponed the motion, which stood in the List of Business, for the passing of the Bill.

The Council was adjourned to Saturday the 16th Instant.

Proposed Methods of levying additional Funds for the construction and repair of Local Roads in the Lower Provinces.

Office Memorandum from H. LEONARD, Esq., C. E., Officiating Secretary to the Government of Bengal, Public Works Department, to the Officiating Secretary to the Government of Bengal.—(No. 1491, dated Fort William, the 3rd March 1868.)

THE undersigned is directed to forward, for consideration and orders, the accompanying copy of a Note by the Officiating Chief Engineer of Bengal, on the subject of the best means of raising funds for the repair of Local Roads in Bengal.

Note on the best means of raising funds for the construction and maintenance of Local Roads, dated 27th February 1868.

THIS question was taken up in consequence of Government of India's Circular No. 2, dated 6th

January 1865, the 8th paragraph of which was circulated to Commissioners and has drawn from them the opinions put up herewith. But the matter has become very much more pressing than it was when the Circular was written, Bengal being now in a state bordering on bankruptcy. To such an extent is this the case that, setting aside all idea of opening up the country by new lines of communication, the existing roads cannot be kept in repair unless some means of raising funds to pay the expenses of carrying out the work be devised.

| | | | |
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3. It is not at all likely that any thing new can be said on a subject which has been under discussion for years, but discussion ought now to give way to action: a scheme of some kind cannot be deferred much longer, unless we allow ourselves to become hopelessly involved, or allow the local means of communication in Bengal to become utterly disorganized; and it may help the advancement of the question if some definite proposition be put into shape. There can, I think, be no room for doubt that we need more funds. According to information received from the Accountant-General, Local Funds are now several lacs in debt; but, setting aside what is past, the present income, of about ten lacs a year, is barely enough to keep existing means of communication in repair, so that trusting to our present income only, all idea of progress must be set aside; while for some years past sums varying from five to ten lacs a year have been devoted to this purpose. That we have not yet, however, arrived at such a state of efficiency as would warrant us in ceasing action, the following facts will shew. Without judging what we have to do by what is done in countries which are very differently circumstanced, some interesting points may be brought out by comparing one part of Bengal with another. In the Patna Division, where probably Indigo planting and opium growing influence has done good, there is a mile of road of some kind to each six square miles of country, while the proportion for all Bengal is one mile of road to each twenty miles of country, so that to put all Bengal in the same position as to the extent of its roads as Patna is now in, we should make 29,000 miles of new roads. It is of course quite true that all Bengal does not require such a system as Patna is provided with; but the comparison shews very forcibly that there is an enormous field to be worked, and that it is too late to sit down yet. Looking at what remains to be done from another point of view does not improve matters much. The Presidency Division is as off as to the proportion of metalled to unmetalled roads. Yet no one, I think, imagines for an instant that many more of the unmetalled roads do not require metalling. The proportion of metalled to unmetalled is one to four, while the proportion for all Bengal is one to twenty; that to put all Bengal in the same state as the Presidency Division is now in, we would require to make 2,700 miles of road.

4. It is unnecessary to go over the opinions given by the Civil Officers consulted; * * *

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Regarding the mode of raising the funds, the majority are in favor of a land tax; but I think none of them has shewn, at all as fully as they might have done, how very much more equitable and how very much less objectionable this mode of raising funds is than any other that has been suggested.

5. The main points to be kept in view in considering this part of the question are—

I.—That those who mainly benefit by the expenditure of the funds raised shall contribute the principal portion of them.

II.—That the imposition of the tax should impede progress as little as possible; for instance, it should not be such as would influence men in any way against keeping the means of transporting produce,—as a wheel tax might do; nor should it be such as would influence a man against using a line of communication,—as a toll on the line might do.

III.—That the collection of it should not open a door for extortion or oppression, and should cause the least possible amount of inconvenience; for instance, it should not give Peons, Chowkedars, &c., an opportunity of visiting houses and extorting bribes,—as the collection of any small personal tax might do; nor should it cause a man to lose days at special times travelling to some place to pay the tax, as in the case of having to come to the Magistrate's Cutcherry to take out a license; or to lose the time of his cattle and himself while debating as to how much he should pay, as is often the case at toll bars and ferries.

Now it seems to me that a land tax is the only tax which in any reasonable degree meets these conditions. Of course I set aside altogether the question which has been often raised as to the legality of the tax,—of this I know nothing; that it would be unjust to make a man pay more than he agreed to pay either for land or for any thing else is clear; but that it may be perfectly just, and even praiseworthy, to make him pay one Rupee for increasing the value of his property by two Rupees, seems equally clear. Indeed, if he were held strictly to his bargain,—if you said, our agreement was that you should pay no more, hence we shall do nothing to improve your property, even though it would be a great advantage to both you and me, he would have good reason to complain: so I shall consider the question on the supposition that there is no illegality or breach of faith involved in raising money from the land for the purpose of increasing its value.

6. As to the first condition mentioned above, it may be admitted as a starting point that roads are made—in the main at least—to facilitate the transport of the produce of the country, though in a minor degree for the transport of those articles which are exchanged for its produce; the mere fancy traffic for the convenience of travelling Baboos going to their homes and visiting their friends need hardly be taken into account. If this be so, it seems to me clear, that it is the land-owners, or holders—the producer as long as the landlords do not alter their rents—who are

the main gainers by the opening up of the country. The fact of a dealer being able to bring his carts to a hilt and take a cart load, instead of a pack-bullock load of produce away from that hilt, enables him to pay more for the produce which he takes away; but the dealer himself might have made just as much profit—probably more as he would have had less competition—when he had to wade through mud and water with his pack-bullocks, carrying away only two maunds on each, as he does now when he goes on a good road and carries away ten maunds on his cart. Accepting strictly what should follow a change of this kind, the trader may not make one farthing more by the opening of the road, but the producer is certain to make. It is no answer to this line of argument to say,—“Oh the dealer will not give the producer the benefit of cheap carriage:” such a state of affairs may continue for a short time, but it will soon right itself; the dealer is at least as likely to give the full value when the road is open to the market as he was when he had to make an adventure to get there at all. No man benefits less than the trader, and therefore, I think, the fact of a land tax not touching him is no argument against it, nor do I think that any complicated arrangements to catch him are at all necessary. The consumer of the produce living in towns certainly gains some advantage by the opening of the country, as the goods can be brought to him at less cost than if there were no roads to cart it on; but it may be noted that, under present Municipal laws, neither dealer nor consumer get off quite free; they generally live in towns, and, under Municipal laws, they have to pay for the maintenance of the streets and roads in and about the town, and these roads and streets facilitate the introduction of produce from the country by which the producer gets at least some benefit, and every countryman and woman coming into town uses the roads and pays nothing. A tax on houses in town and on land in the country makes almost all classes contribute to the maintenance of roads, and it appears to me that it makes those who benefit contribute in proportion to the advantage they gain infinitely better than any other form of taxation which can be devised for this purpose.

7. Touching the second condition,—that the imposition should not impede progress, this form of tax is absolutely unobjectionable; nay more it tends to make people use the highways in order to get as much value as they can for the money which they must pay. A tax of this kind, and a direct tax on the use of carts, have something the same relation to each other as the direct water-rate in the North-West and the rate on wet ground in Madras have. In the North-West a man lounges out, looks at the sky and says, ‘Oh it will rain, why should I pay for water, I shall take none:’ it does not rain, and he loses some of his crop. The Madras man says, I pay for the water, why not have it; he uses it and increases the produce of the soil just because he has paid. So it would be in a degree with a cart-owner; he calculates the trouble and cost of paying toll, drifts on to the idea that it is just as well to do without a cart, and so loses more by the decision than he would by the payment of toll; but a man who has paid his cess is induced to get a cart, because he has paid, and so he helps to increase the commerce of the country; the point which influenced both decisions being simply the means adopted in

levying and collecting the tax, quite apart from the amount to be paid.

8. Then a tax on land meets the third condition almost completely, certainly very much better than any other mode of raising the necessary funds. I suppose it to be paid by all those who now pay rents into the Treasury,—allowing those who have land let on terms which prevent them from increasing the rent, to charge the actual tax paid in additions to the fixed rent; but making their own arrangements with tenants over whom they have power. The money would be paid into the Treasury with the rent, without any separate collections, and without the loss of a single additional day: there would be no room for interference of subordinates; no door for oppressions of any kind is opened up by it, and no standing at toll bars or ferries, looking for a few pice, or waiting for change; in fact, the payment of the money is the only inconvenience felt. This is saying a great deal in favor of a tax in any country; but in India it indicates more than the ordinary meaning of the words conveys.

9. There is nothing new in the idea that this mode of raising a revenue for keeping up the communication of a country is the most equitable and the least objectionable that can be adopted: the principle is acted on in England and in Scotland; but in both cases in connexion with obstructive toll bars, now looked upon as unfortunate legacies left us by our fathers, which it is our duty to remove, and which we are gradually and steadily removing. It is adopted in Ireland to the almost complete exclusion of toll bars, and there the system works extremely well. It is in force to some extent in France, where it is being steadily extended and where every toll bar has been long ago swept away. The same principle is acted on in Prussian Germany and in Northern Italy. I mention these instances because I happen to know how the system is worked in the countries named not because I think it is confined to them: on the contrary, I believe it to be very wide-spread. It should, however, probably be noted, that in most of the countries named there is a much better basis for the assessment than any which is available in Bengal: but on the other hand here there is an unobjectionable and inexpensive means of collection in existence, whereas in Great Britain a costly system had to be organised for the purpose.

10. If this mode of raising fund be adopted, a few points connected with its practical application require consideration—

I.—The area of the Divisions over which the same rate shall prevail.

II.—The basis on which the assessment shall be levied,—whether it shall be a percentage on the present rents, on the average of each holding, or on new data to be collected for the special purpose.

III.—Whether in the same Division there should be any variation in the amount assessed on holdings on account of their different distances from the work to be done.

11. With regard to the first point, a good deal of local knowledge is necessary to enable one to form a practically useful opinion on the subject; but it may be laid down as a rule that the smaller the areas of divisions are, the more likely

all the holdings in each will be to derive something like equal advantage from any works done, and—a point which seems to me of still more importance—small Divisions have the advantage of exciting more local interest than large ones; land-holders will probably show more concern in the improvement and assessment of a Division with which they are thoroughly acquainted, and in the greater part of which they have direct interest, than they would show in a large Division with which they were comparatively unacquainted. Having given the question some consideration, I am of opinion that the present Sub-Divisions would not be too small for separate assessment purposes; there is hardly a Sub-Division that would not have small works entirely within itself with which it might deal quite independently of other Divisions, and this, I think, is a feature which may be considered the qualifying test as to the right of an area to have its assessment separately fixed.

12. Touching the second point, the basis of the assessments, that is, whether it should be a percentage on the present rents, or on the acreage, or on new data to be collected; the first would be the simplest way of dealing with it, but as Mr. Dampier points out it would be unfair; those proprietors who have their holdings at the lowest rent-paying the least proportion of the tax. On the other hand, a uniform rate per acre might be quite as unfair as the land producing most, and hence benefitting most, would pay no more than the most sterile tracts. The proper basis is, of course, the actual value of the holding, but unfortunately there is no record of this value; a very accurate valuation, however, is not required, and it seems to me that any Collector could make a classification of the lands in his Division without any great trouble or expense, which would afford fair data for an assessment of the kind advocated. The whole might probably be divided into four classes of the value of 4, 8, 12 and 16 annas per beegah: each holding once put under its proper class or classes would not be changed, and there would be no more trouble for years. The rate would then be a percentage on the value of all holdings according to this estimate.

13. Regarding the third point, whether all holdings,—being either near to or far from a road—should pay the same percentage, one is apt to think that a road being made through a district, those parties whose holdings are near it derive very much more advantage from the work than those who may be some miles away; but a little consideration will show that is not so clear as it would at first sight appear. A new road is seldom made in an entirely new line; indeed it is hardly ever so made. Take almost any road with which we are acquainted,—the Bongong and Chogdah Road for instance,—the new line is almost entirely along the general track of the old road, not varying from it a quarter of a mile in any place; the advantage that a man living close to it gets is, that he has a really good road to travel over, instead of a very bad one amounting to about no road at all; the man who lives five or ten miles off the road and joins it at the point where the other man lives, has his bad road, or no road for the five miles, until he gets to the new road, but then he has just the same advantage as the man who lives beside it. The fact of being originally close to the road is a great advantage to the man who is there;

but he receives only about the same amount of benefit from our improvement of it as the other. In the case of a new road by an entirely new route this remark would not hold good; and in the case of a man living so far away from the road that he could not use it at all, it would not apply; but the fact is such cases are very rare; in the first case the old lines of route have all been fixed ages ago, and they are now either the best routes to follow in an engineering point of view, or they are so important in point of convenience that they could not well be abandoned; and it is to be hoped, if funds be raised to carry on improvement, that few landholders, if any, will be without the use of a road of some kind. I think therefore that no distinction in the rate of assessment need be made on account of the distance which a man lives from the road: any such arrangement would cause great complications, and open up a field for endless disputation or even for dishonest influences.

14. An important question now arises, that is, if this principle of providing funds be adopted, how far every other impost levied for the same purpose should be abolished. *I would abolish every toll in the District, and make every ferry free*; having one tax, which seems to be a fair one for all concerned. I would wipe off every thing that impeded traffic in the slightest degree. It is hardly necessary to argue in favor of abolishing toll bars; almost all those who have given any attention to the question agree that they ought to go. I may, however, mention, as a point in favor of this view, that a slip just received shows the curious fact that the amount collected from toll bars and ferries hardly increases in the slightest degree; that traffic has increased largely there can be no doubt whatever, and hence the whole profit arising from this increase must go into the pockets of the collector or farmers,—road funds are not richer, traffic is interfered with, and no one is benefited but the party whose interest is supposed to form no part whatever of the arrangement, the faculty for cheating seems to have become sharpened by use, the improvement of it just keeping pace with the increase of traffic developed by the opening up of the country. In the case of ferries, however, I fear I shall encounter more difference of opinion, though to me the case seems to be so clear, I wonder how there can be room for disputing. On speaking the other day to one of the best Civil Officers in Bengal on the subject, I could not persuade him to entertain the idea that I was correct in my view; "what, he said, you actually pay fifty Rupees a month *hard cash* to keep up a ferry for the convenience of the public, and you would not even re-imburse yourself for the outlay." I made no impression on him by explaining that on the road coming up to the site of the ferry, we laid out not Rupees fifty a month, but probably ten times fifty Rupees for the very same purpose,—to afford convenience to the very same people, and yet was agreed that we should abolish the toll bar by which we collected barely enough to re-imburse ourselves for the outlay; nor by explaining, that, if you remove the ferry, and build a bridge at such an expense that the interest of the money expended would greatly exceed fifty Rupees a month, we generally made no charge on the bridge. "Ah! but they are accustomed to it in the case of the ferry, and it would be absurd to abolish it" was his reply. I had no answer

to give to this line of argument,—they are accustomed to it,—and if that be a reason for keeping up a system which is quite as objectionable, indeed more objectionable than a toll bar, I have no more to say; I would, however, break through prejudices in the case, and allow traffic to cross the river as freely as it travels on the road. I have only one doubt on the subject, that is, whether, if ferries were quite free—the boats and servants being ours—they would take people and cattle over as freely as if they had to collect the pice for passing them; but on fully considering the subject, I think it absurd to admit for an instant that we cannot make our servants do their duty without resorting to means to induce them, which we consider absolutely wrong. I have no doubt they will soon learn to do their duty for us, as well as they now do it for some Baboo who rents the ferry, and perhaps never sees it; they may use a little pressure in collecting an illegal pice now and then; but there is as large a field open for them to work on now, when pice has to be handled continually, as there would be if they did not see the tempting coin at all, and when all knew that crossing was to be wholly free. I would, as I have said at the commencement of this paragraph, abolish all toll bars and make all ferries, on every line of communication maintained from funds raised by local taxation, perfectly free.

15. These remarks would not apply to such cases as the Nuddea Rivers, the Calcutta and Eastern Canals, and the Ganges, which are great highways quite out of the reach of local resources or management, and used by people whom this Government could not touch at all, if it did not touch them in the shape of toll. The profits from these sources, and others now available, might be kept as a kind of grant-in-aid fund to help local committees in carrying out special works, for giving aid to poor districts which may be considered unable to develop their resources without some temporary assistance, and for carrying out other small works which might not fairly come under the local arrangements.

16. If any such arrangement as that discussed above be adopted for raising funds, it will be necessary, or at least expedient, to reorganise the machinery for arranging and carrying on the work for which the funds are to be raised: it will be well to give those who have to provide the means a direct share in the control, both as to how much is to be provided, and how it is to be expended. This principle is of course fully admitted in the formation of Municipal Committees all over the country; indeed, nothing more is necessary than to extend the municipal principle—with such modification as may be found desirable—to bodies representing the mofussil interest. One of the most important points for consideration in connection with it is, how far the sub-division of the country may be carried so as to bring the most useful amount of local interest to bear on improvement: the remarks made when discussing the extent of the areas for assessment purposes apply equally now. For the smallest local interests, the present sub-divisions are, I think, large enough. In each I would have sub-committees consisting of the Assistant Magistrate, the Police Officer, the Public Works Officer, and a proper representation of the land-holders. The next division would naturally be the Collector's District; here I would ha

Committee consisting of the Collector, Police Officer, Public Works Officer, Sub-Divisional Magistrates, and a proper number of representative land-holders from each Sub-Division. Finally, I would have a Committee of Control for the Commissioner's Division, consisting of the Commissioner, the Superintending Engineer, the Deputy Inspector-General of Police, the Magistrates, Executive Engineers and a proper representative party from the land-holders of the Collectors' Committees.

17. The Sub-Committee would generally be the originators of works; they would suggest what new roads were to be made, and of what class they should be; what improvements were to be carried out on existing communications, what repairs were to be provided for, and submit this information, accompanied by an estimate of the cost, to the District Committees. Of course, the Sub-Committee would have the means of making their own calculations as to the assessment necessary to provide funds for carrying out what they proposed, but they would have nothing to do with levying or collecting the cess. The District Committee would see that each project proposed by one Sub-Committee fitted into that proposed by another, if there should be any connexion at all between them, and they would suggest such alterations as might seem desirable to meet this view. They might also suggest the more general class of projects; lines affecting the whole district; encourage the Sub-Committees to unite in carrying them out, and, in the event of their refusing to do so, represent the case to the Committee of Control, to whom they would send up all projects. The duty of the Committee of Control would be to sanction all those works about which the two Committees below were agreed, and, with the sanction of Government, enforce the carrying out of such works as the Committee recommended in opposition to the views of the Sub-Committee.

18. I think there is good ground for hoping that Sub-Committees constituted in the way mentioned might be so selected that they would take a real interest in the working of the system; certainly, if any thing will make them take such an interest, it is having to fix the taxes in their own Sub-Divisions; the late action of the Calcutta Municipality shows that, even with a tolerably unwieldy body, this motive can make the Members move. On the other hand, the working of the old Ferry Fund Committees shows that, if Members of such Committees are merely called together for nominal action in cases where their pockets are not directly touched, they will soon leave every thing in the hands of whatever Officer may be at their head, and the result of this mode of proceeding, as exemplified by these Committees, is not such as should induce Government to encourage a continuation of it. In selecting the Members of the proposed Committee, one object to be kept in view should be to get men who would think and act for themselves, who would not be weakly led by the head of their Committee, and, having once made this selection, and seen that it worked even moderately well, the proposals and arrangements of each Committee should be treated with great consideration; indeed, they should not be altered or set aside unless on very strong grounds.

19. The proceeding for the executive work of the system would be simple. The Committee of

Control having finally approved of the works proposed, with the sanction of Government, where necessary, would send them down to the District Committee, who would fix the rate of taxation for each Sub-Division; the calculations being made strictly on the basis of the works sanctioned and the fixed valuations of the holdings. They would also remit the money to the Sub-Committees in such sums and at such times as they desired it. They would then have nothing more to do with the operations beyond seeing in a general way that the works were carried out in accordance with the designs and estimates sanctioned. The Sub-Committee would superintend all the details of taking up and paying for land, paying for work done, and giving all the aid possible to the Executive.

20. I have given a great deal of consideration to the question.—By what executive agency should the work be carried out? Of course the first idea which occurs to one is, what use can be made of the existing machinery, and after weighing every point, which I thought told either for or against this idea, I am decidedly of opinion that using it is the best arrangement which can be made,—it has the great advantage of being an organized machinery, and whether it is as good as it might be or not, in general working, it is decidedly the best which is available in technical qualification; indeed, there is none other available at all, not even enough to meet the wants of the Department itself, and it can be adapted to meet the demands of the case fairly, if not fully, without any great change in the present system of working.

21. I know that there is an idea afloat that almost any thing would be better than the Public Works Department, but I have no hesitation in saying that I think the idea wrong; without going so far as to argue that the Department is all that could be desired, I cannot believe that a Mohurir is a comparatively pure being compared with a Sub-Overseer, nor that he can, or will, make a better road; nor do I see why a Darogah should be a model of honesty compared with his brother, who is an Overseer, nor how he can be a better man to build a bridge or deepen a khali; nor that Serjeant Jones is better, because he leaves the Department and gets employment under the Magistrate, than he was before he left,—was turned out most probably; indeed, one would think that with very much looser supervision than even ours can be, work done by these men would be any thing but an improvement on the Public Works arrangements. The fact is the men with whom we have to work are far from faultless; our system detects and exposes a great deal of their faults—though sometimes it is done too late to be of much use—and we are not sparing of letting the outside world know that we do make mistakes; then the shortcomings of our Department are always causing inconvenience to others; to the Commissioner, who is shaken in going over a rough road; to the Magistrate, whose Cutcherry will leak to the Darogah even, whose Thana is not repaired in proper time; in fact to every official and, indeed, non-official in the District; and hence, of course, we hear more of the shortcomings of this Department than of any other. It is an executive body whom every one superintends, and it is so much easier to superintend than to execute—and it does execute badly sometimes—and hence there is great fault-finding, great